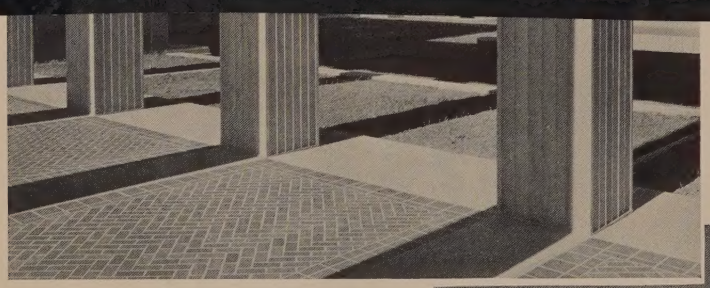
ARCHITECTURAL CONCRETE

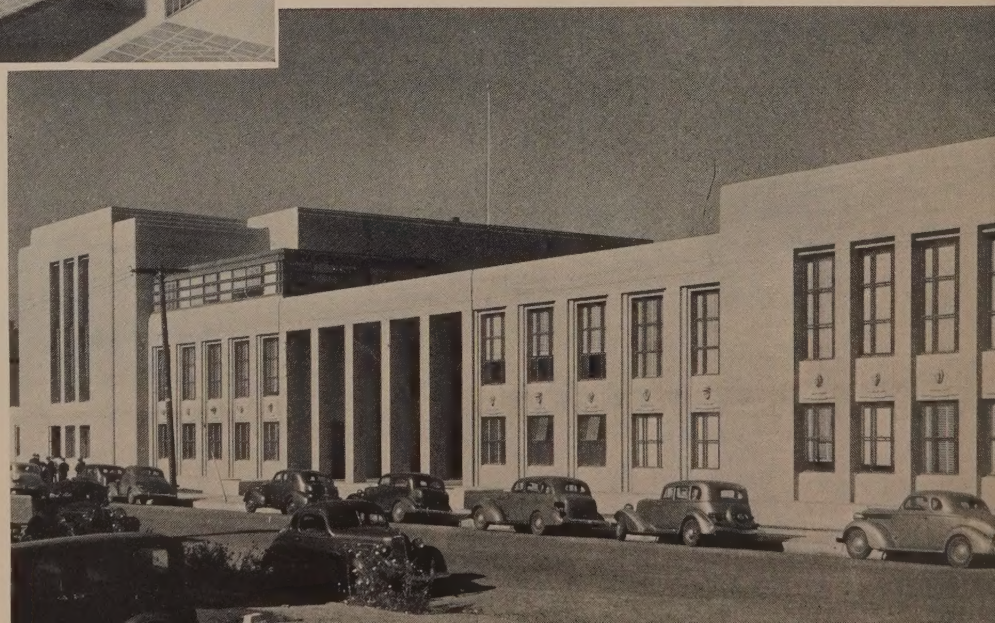
VOLUME FOUR

NUMBER ONE



On completion, the old building was razed and carried out through the arcade, leaving a fine patio in its place.

Monterey County Courthouse (*also see cover*) *completed in 1937, is one of Salinas' newest concrete buildings. The new 2-story concrete structure was built around the old courthouse while business went on as usual in the latter building. One of the principal decorative features in the design is a series of sculptured concrete heads by Jo Mora. The courthouse was designed by Robert Stanton, architect, of Monterey. Barrett & Hilp, San Francisco, were contractors, C. R. Phillips was superintendent for the county and the architect.*



Architectural CONCRETE

Modern is the Word for Salinas

IN the late 70's Salinas, California, was made the new county seat of an old territory whose social, cultural and economic center had been, up to that time, the ancient and magnificent Spanish capital of Monterey. It was a dusty, upstart village square in the middle of a dry but fertile valley, a town whose birth and early development symbolized the abrupt methods by which the Yankees "took over" and pushed aside obstacles in the lengthening frontier paths.

Compared to the mild Indians, kindly Spaniards and happy Mexicans native to the region, who were steeped in a hundred years of the gentle religion the old padres brought over El Camino Real, the men of Salinas were hard-bitten and direct. They fought for the land and fought each other for parcels of it. They argued with rough logic and when reason failed to settle claims, they sometimes spent pistol bullets with convincing effect. Salinas was a typical fast-moving pioneer town where the people wanted to make a business out of the land.

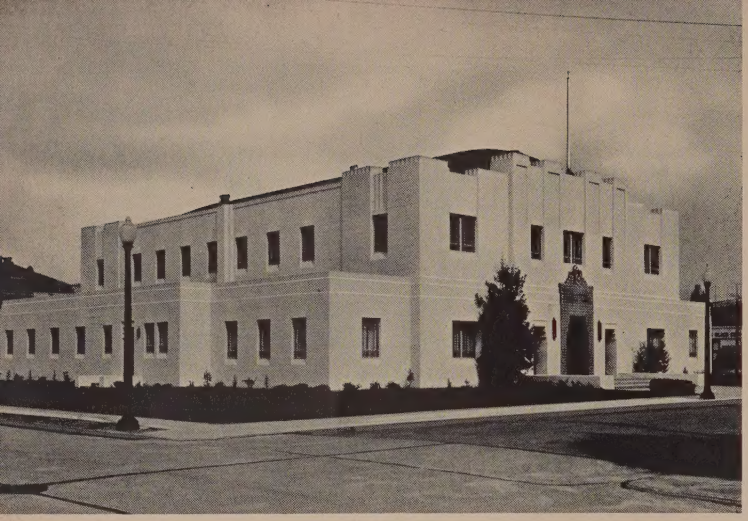
In 1938 the distinct contrasts between Salinas and the richly historical region surrounding it exist as strongly as ever. The old Spanish communities cherish their original buildings and haciendas, revere their charming old world atmosphere, and indulge in gay but quiet and dignified fiestas. Salinas, surrounded by its great ranches, still seems a bit on the wild side —but that is because of the rush and rumble of its varied business interests. It manufactures many things from rubber goods to beer; cans fruits, vegetables and milk; and raises stock and ships it to market. It is the center of California's $16,000,000 lettuce industry, and for this bears the proud title of "Salad Bowl of the World." Salinas has a population of 10,000-plus and bank deposits of $11,000,000. The town's annual celebration, famed from coast to coast, is a loud, lusty, rip-roaring rodeo always held the third week in July. To prove how red-blooded a place it is, there are almost as many meat markets in Salinas as there are grocery stores.

Because Salinas was never burdened with traditions, it has always been ready to adopt new methods, ideas and appearances. That is why the current visitor in Salinas finds himself in a bustling miniature of a modern American metropolis. Few towns of any size, anywhere, have as fine an array of permanent public buildings, modern streets and traffic facilities. In keeping with these evidences of public spirit, commercial and industrial buildings in the last few years have been built new in the mode, or have had their faces lifted.

Some of Salinas' famous salads get ready to go to market.

Of interest here is the fact that most of this new construction during the past ten years has been executed in that most modern of building materials—concrete.

The newest of the Salinas concrete buildings is the Monterey County Courthouse, occupied August 1,



National Guard Armory, built in 1935, was designed by Guy O. Knoepp, architect of Carmel, California. Guth & Fox, Sacramento, contractor.

1937, and the manner in which the building was designed and erected demonstrates that the men of Salinas have not lost their direct and determined manners. The new courthouse stands on the site of the old building which was a cross-shaped, high-towered relic of Victorian days. Because Monterey County courts are still busy with the land claims that made its early days so hectic, it was deemed impossible to raze the old structure before the new one was built and ready to occupy. So they built the new courthouse up around the old one, and when the job was finished, razed the old relic and carried it out piece by piece through arcades which separate the two rectangular units of the new building. Now there is an interior court providing a huge light well for interior rooms, but more decoratively serving as a well-planted patio.

The strong contemporary design of the courthouse makes a splendid concession to the history of California and particularly Monterey County in its decorative treatment, for all the spandrels between first and second-story windows around the structure bear sculptured heads symbolizing the characters and types of people who owned the land, or settled it, exploited it, or took it from somebody else. There are 73 of these heads, designed by Jo Mora and precast in concrete, and they represent 22 different designs—Indians, frontiersmen, gold miners, cowboys, padres, vaqueros, caballeros, conquistadors, trappers, soldiers, scouts and roustabouts. They are a well-executed gallery of fine faces.

On one side of the courthouse is a concrete jail, erected in 1931, and on the other side a most modern postoffice built in 1937. Just a block and a half away stands the National Guard Armory, built of concrete in 1935 to house the only tank company in Northern California. Five blocks to the north is Sacred Heart Church, a romanesque concrete edifice erected in 1927, while six blocks south stands Salinas Union High School, one of the finest centralized school buildings in the west with 1166 students attending from fourteen districts of Monterey County and all of Salinas. The main portion of the school was erected in 1922 with subsequent additions built in 1925 and 1931.

Each of these structures differs in architectural style and in treatment of its concrete surfaces. The new courthouse has a light sand-blast finish and the color of the building tends to pink rather than natural cement color. The jail is painted white with bold form marks creating interesting shadow lines. A light buff paint was used on the Armory to contrast with pale green tile trim. The simply formed walls of the postoffice were given a cement wash while the Sacred Heart Church was left as it came from the forms with no attempt to conceal the board markings. A stucco dash coat and cast stone trim were effective in achieving the Spanish design of the High School. Each building thus has a distinctive character both as to shape and color, but all reflect the same degree of craftsmanship and careful design.

Over in the business district one finds the Fox Theater has been lately given a new front of architectural concrete, deftly formed with milled wood molds and painted white to form a background for its modern sign. Just ready for occupancy is a long single-story commercial building erected by the Parisian Bakery to house its own business and six other enterprises. At the south edge of the town, where the lettuce industry works night and day in long sheds packing incipient salads in wax paper and ice, an industry which supplies the wax paper is housed in a spanking new concrete building. Behind this building the owner has built himself a house out of materials left over from the factory.

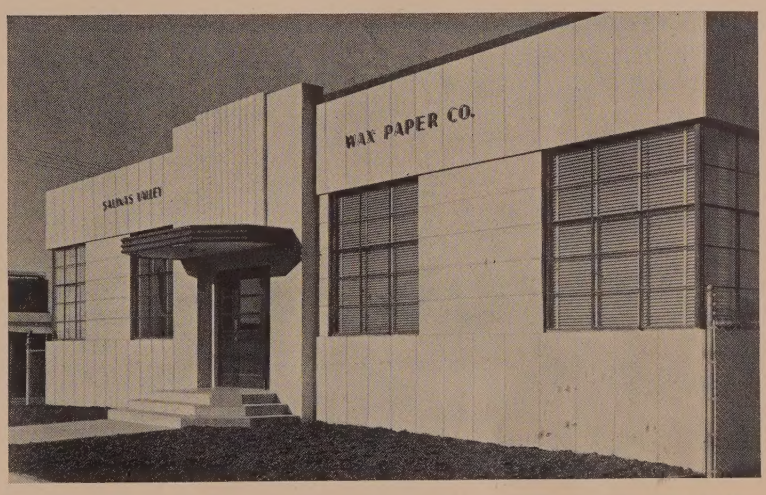
Long tree-lined rows of prosperous-looking, carefully maintained homes are divided by wide, clean concrete streets. But the latest traffic facility is a grade separation structure which carries Southern Pacific trains over the heavily-used Pacific Coast Highway at the point at which this great artery divides to by-pass Salinas and, in the modern manner, speed up through traffic and take congestion off the town's busy commercial streets.

All in all, there is probably more concrete on the ground and in the air in Salinas than in any town or district of its size in the world. This is interesting, but not as important as the splendid manner in which the material has been used. The design and execution of these structures is so uniformly pleasing that the visitor, unaccustomed to such integrity in fast-growing commercial areas, can't escape the feeling of stability, permanence and assurance that pervades the town and its people. Then, on Saturday afternoons, when the modern rancheros come into town with ten-gallon hats and high-heeled boots, one recalls that it is still the same little old town whose credo long ago was thick steaks, hard work —and get what you want.

Monterey County Jail was built in 1931. Will G. Corlett of Oakland was architect and Wm. C. Keating, contractor.

Sacred Heart Church on Sunday morning. Built in 1927, it was designe by C. H. Jensen, architect. J. A. Bryant was general contracto

Postoffice, designed by Procurement Division, Treasury Department. Louis Simon, supervising architect and Neil A. Melick, supervising engineer. Built in 1937 by Frank J. Reilly Company.



Salinas Valley Wax Paper Co. was designed and built by George Anderson in 1937.

Union High School, built in 1922, was designed by Ralph Wykoff, architect. Additions were by Architect . Buttner. McLaren & Peterson, contractors.

Alexander Cantin, architect, designe Fox Theater.

The Hecht Company, one of the large stores of Washington, D. C., solved its customer parking problem by erecting this triple-deck parking garage. Abbott, Merkt & Company was the designer. It was erected in five weeks by James L. Parsons, Jr., the contractor.

Low Cost Off-Street Parking

By Hunley Abbott*

IN a nation where there are more automobiles than homes, and where a goodly portion of the automobiles try to concentrate every day within the limited confines of central business districts, one of the chief causes of annoyance and irritation to motorists is trying to find a place to park.

In the larger cities where existing business streets were designed to carry but a fraction of the traffic that pushes through them, congestion has lately become so great that street-side parking has been prohibited by law to avoid complete stagnation. Chicago, New York, Boston, Pittsburgh and Washington have, within the last decade, banned parking in large areas of their retail shopping districts, and despite public grumbling and fuming these laws have been enforced.

But easing traffic movements solves less than half the problem for, in voiding the right to park in the street, the municipalities have not provided off-street parking within the shopping areas. Private storage and parking lots frequently charge so high a rate that the ordinary motorist can rightly protest he is paying a premium for the privilege of spending his money in shops and stores.

Hardest hit by these regulations have been the large stores which are anxious for the "carriage trade." Today this trade consists mainly of customers who drive their own cars and who would like to park outside and shop with plenty of time to visit all parts of the store, if desired, without being hurried. Parking has become so discouraging in some towns that these profitable mass-shoppers have been forced to take their trade outside the central buying areas.

Fighting to keep trade and good will built up through many years of service, several large stores have taken the

*President, Abbott, Merkt & Company.

parking problem into their own hands. The Kaufmann Department Store in Pittsburgh and the Marshall Field Co. - in Evanston, Ill., have erected parking garages for the convenience of their patrons, and lately the Hecht Co. of Washington, D. C., has opened a customer garage within one block of its big store. The Hecht garage was designed by our firm and built by James L. Parsons, Jr., in the record time of five weeks.

The solution to the Hecht Co.'s parking problem was a three-deck reinforced concrete parking garage located at the corner of F and 7th Streets. Its capacity is 275 cars at one time, but it is not unusual to accommodate 2,000 cars during a single business day.

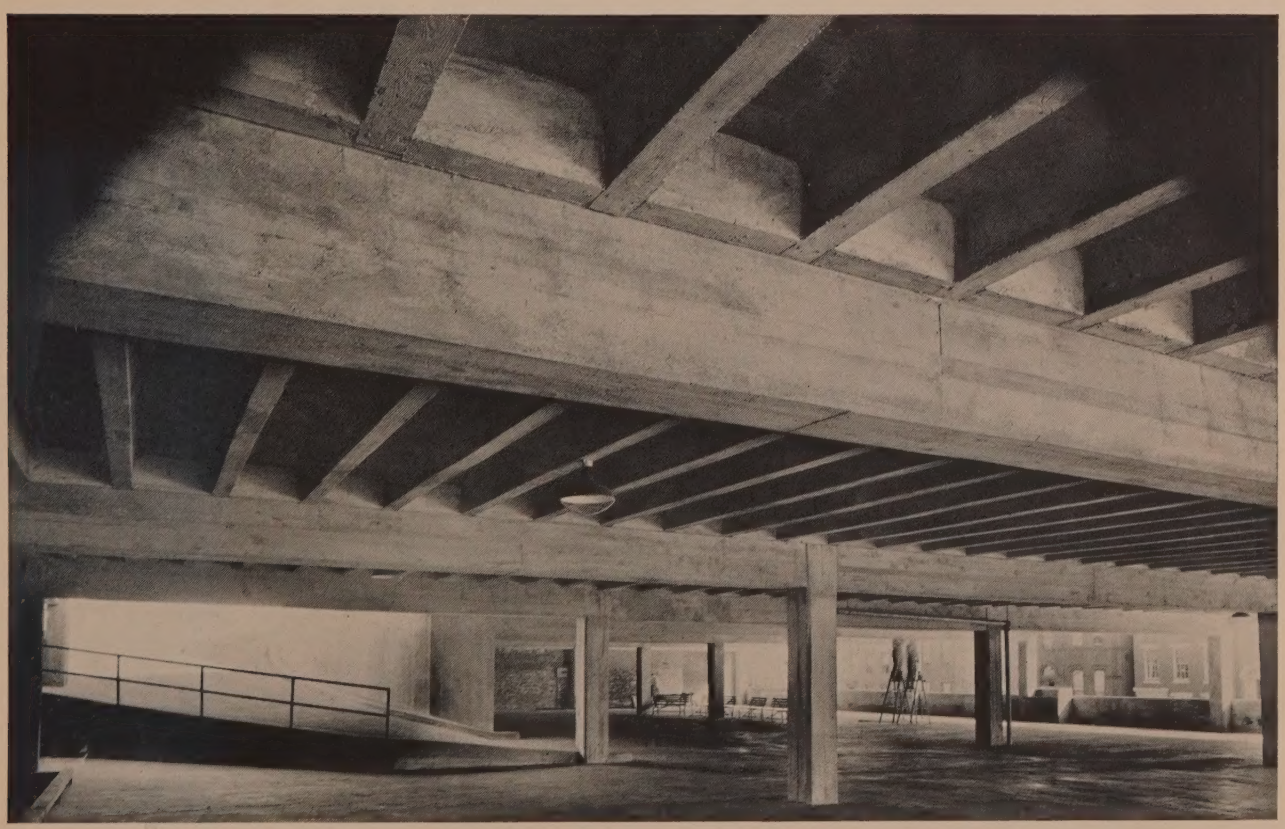
Chief deterrent to construction of parking garages heretofore has been the cost of such buildings, which has made it necessary to charge higher parking fees than the public has felt willing to pay. Full-walled garages have cost on an average of $2.50 per sq. ft., whereas the Hecht garage is an open type building costing about $1.00 per sq. ft. of floor. This very material saving in capital investment should make it possible for private garage operators to charge lower fees, thereby securing a larger number of customers, and possibly make a better profit than would result from higher fees in a more expensive building.

At any rate, the cost of providing customer parking convenience in this new type of building is considered a good investment by the Hecht Co., which derives no direct revenue from the structure.

The new garage is a two-story building, 175x95 ft. in plan. Both floors and roof are used for parking, the upper decks being accessible by easy ramps. There are no exterior walls other than concrete spandrels.

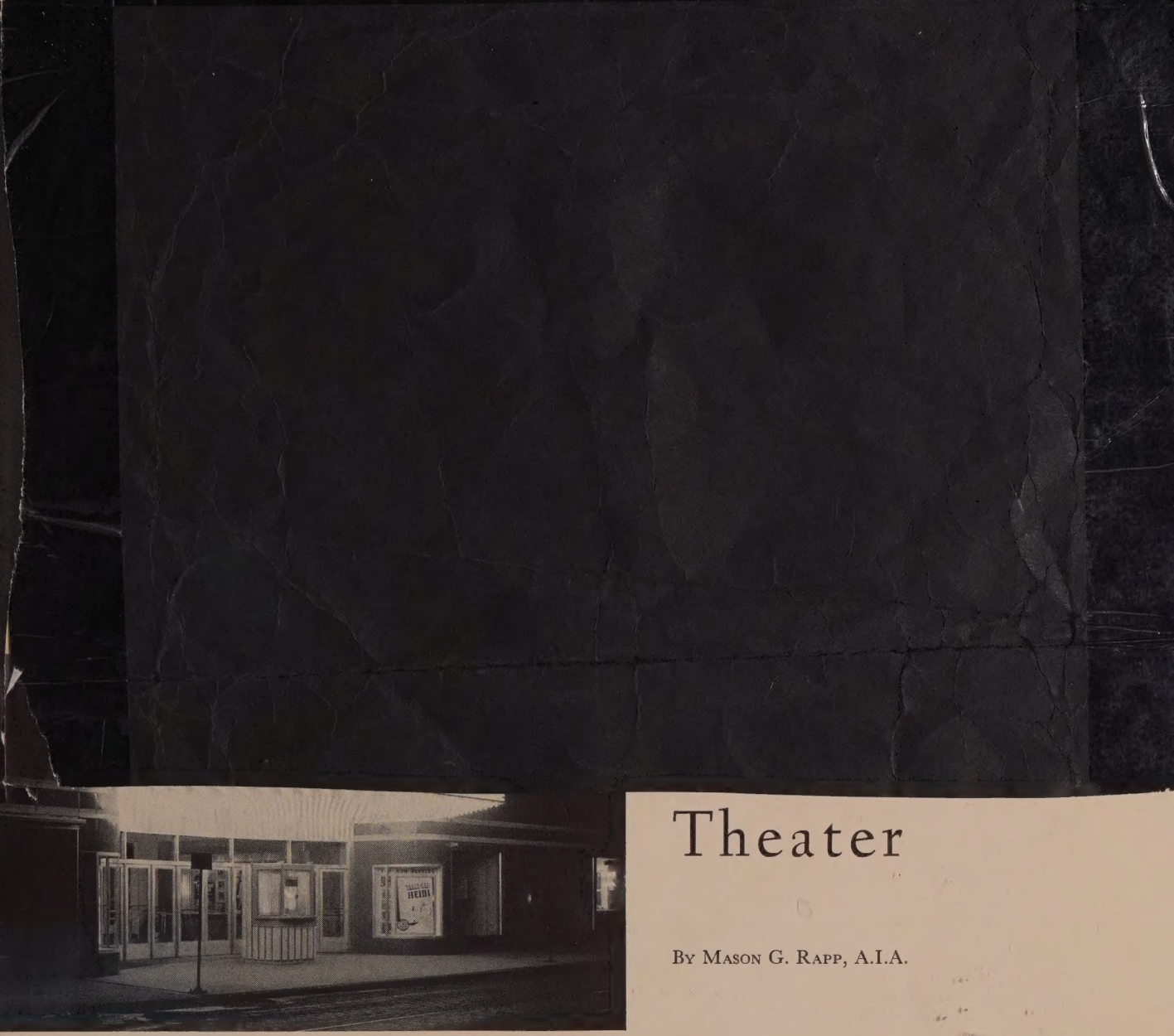
The 95-ft. width of the building is divided into two short outer spans and one long inner span. The floor and roof are of long-span, ribbed construction comprising 2½-in. top and 6x14-in. ribs. The outer spandrel or curtain walls were placed against Presdwood form lining, with wood strips to form horizontal rustications. A 1:1½:3 mix was used in the entire building in order to make the concrete as watertight and weather-resisting as possible. Another reason for this comparatively rich standard portland cement mix was the necessity for developing a strong concrete in seven days, which is the minimum time that must elapse before stripping forms according to the Washington Building Department.

The speed with which the building was constructed was to meet the desire of the owners to have the structure finished in time for the first big autumn sales event.



Floors and roof are of long-span, ribbed construction. There is easy access to each parking level by means of ramps.

Kaufmann Department Store in Pittsburgh makes its "carriage trade" welcome by providing this splendid open-air garage. William E. Hoover was the architect for this structure and Mitzger-Richardson Company, engineer. Mellon-Stuart Company was the contractor. Parking garages are "good will" builders and they take a great burden of traffic off congested city streets.



Theater

By Mason G. Rapp, A.I.A.

MOVING picture production, advertising and distribution have become so efficient that the business of operating a cinema house is today an almost standardized practice. Star performers, built up by their studios, are so thoroughly tied in with current productions through preview publicity, reviews and Hollywood gossip, that the public knows long in advance of local releases what pictures it will see and why it wants to see them. Theater-goers today, therefore, are influenced more than ever before by the type of program offered than by the prestige of the cinema house. This changed status of the theater has created new problems in economical theater design.

Because picture programs are of primary consideration, the theater itself can be kept simple in plan, layout and operation. It should be a comfortable and attractive auditorium, but not lavish in appointment. Good acoustics are more important than costly interior enrichment. Exterior appearance should be simple and distinctive, and the theater must devote ample space on the street facade for advertising current attractions. Because it is desirable to show each picture in many houses within the popular life of the feature it is necessary to have many theaters conveniently located, hence the cost of construction and operation of any one theater must be kept as low as consistent with good

The walls flanking the central motif are set back 5 ft. from the building and rise above a parapet wall of burgundy-colored Macotta.

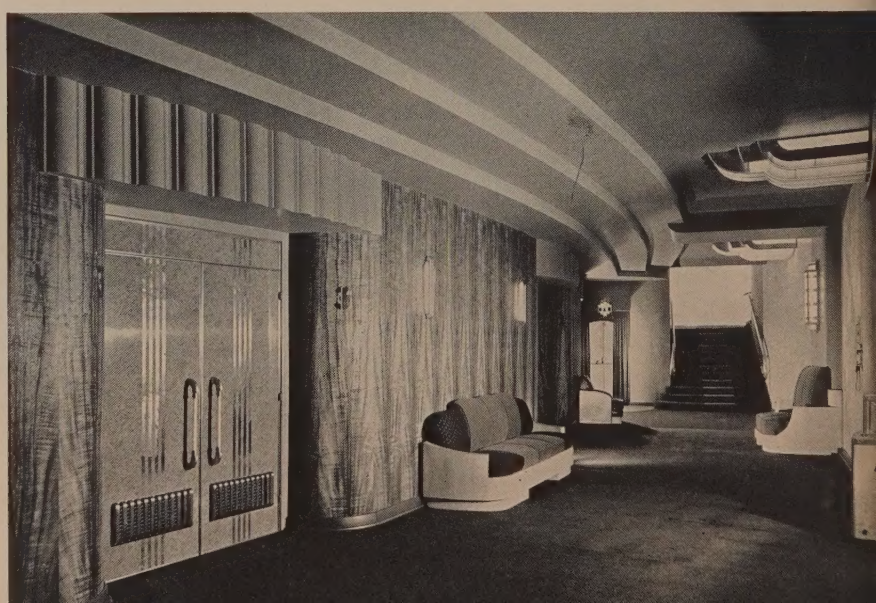
design and construction.

The new Rhodes Theater in Chicago, designed by C. W. and George L. Rapp, Inc., architects, for Warner Brothers in 1937, demonstrates the requirements of modern theater design. It is a moderate-sized community theater, seating approximately 1,500, including a balcony. From the standpoint of acoustics, it is considered one of the finest "sound houses" in America. The exterior of this theater, which could hardly be mistaken for any other type of building, is a composition of a very few simple decorative motifs and restrained use of color. The auditorium is even more simple and direct in conception, because the aim there was to give the occupant of any seat maximum visibility, and to disturb him as little as possible by decorative ornamentations. Accordingly, the strong horizontal banding of the walls and the fins projecting from the ceiling not only breaks up the monotony of wide areas, but serves to direct attention to the screen. The colors of the interior are soft blue and warm champagne, and all lighting is indirect from long coves in the walls.

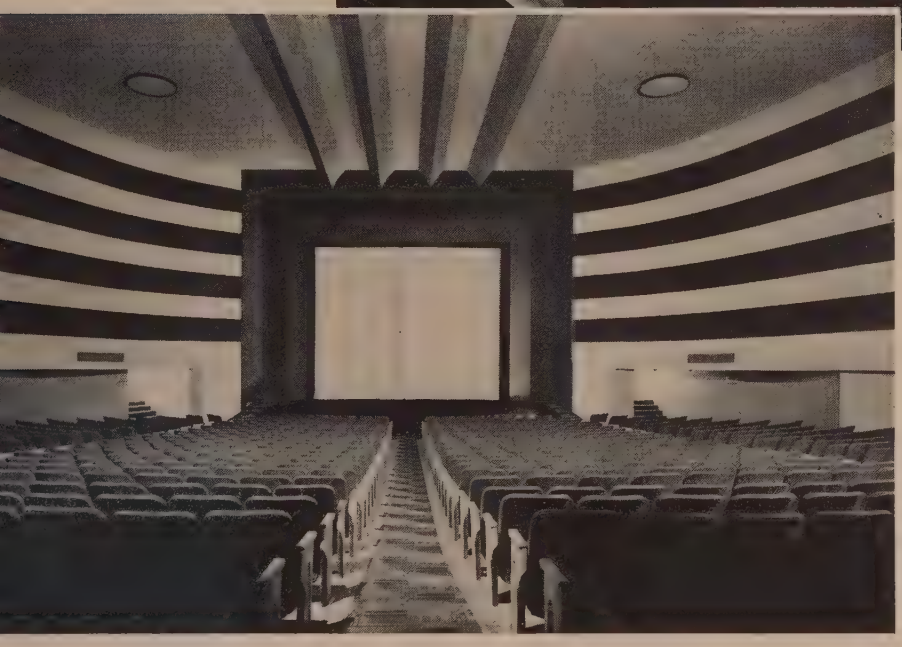
Architectural concrete was chosen as the medium for the exterior since this material is favorable in cost and allows a decided freedom of design. The project from the start was frankly designed with this material in mind.

The walls flanking the central motif are deeply rusticated to effect wide horizontal shadow lines. These walls, set back 5 ft. from the building line, rise above a parapet wall over the shop fronts which is made of a deep burgundy-colored Macotta. All concrete exposed on the outside was rubbed

Wood veneers were used effectively for decoration of the foyer walls.



popular Hollywood touch are e hand and foot imprints of 30 ovie stars on concrete slabs em- dded in the lobby floor. Pictures the stars are grouped above.



The banded walls and ceiling fins direct attention to the screen.

with carborundum stone to a smooth texture. There was no other finish treatment.

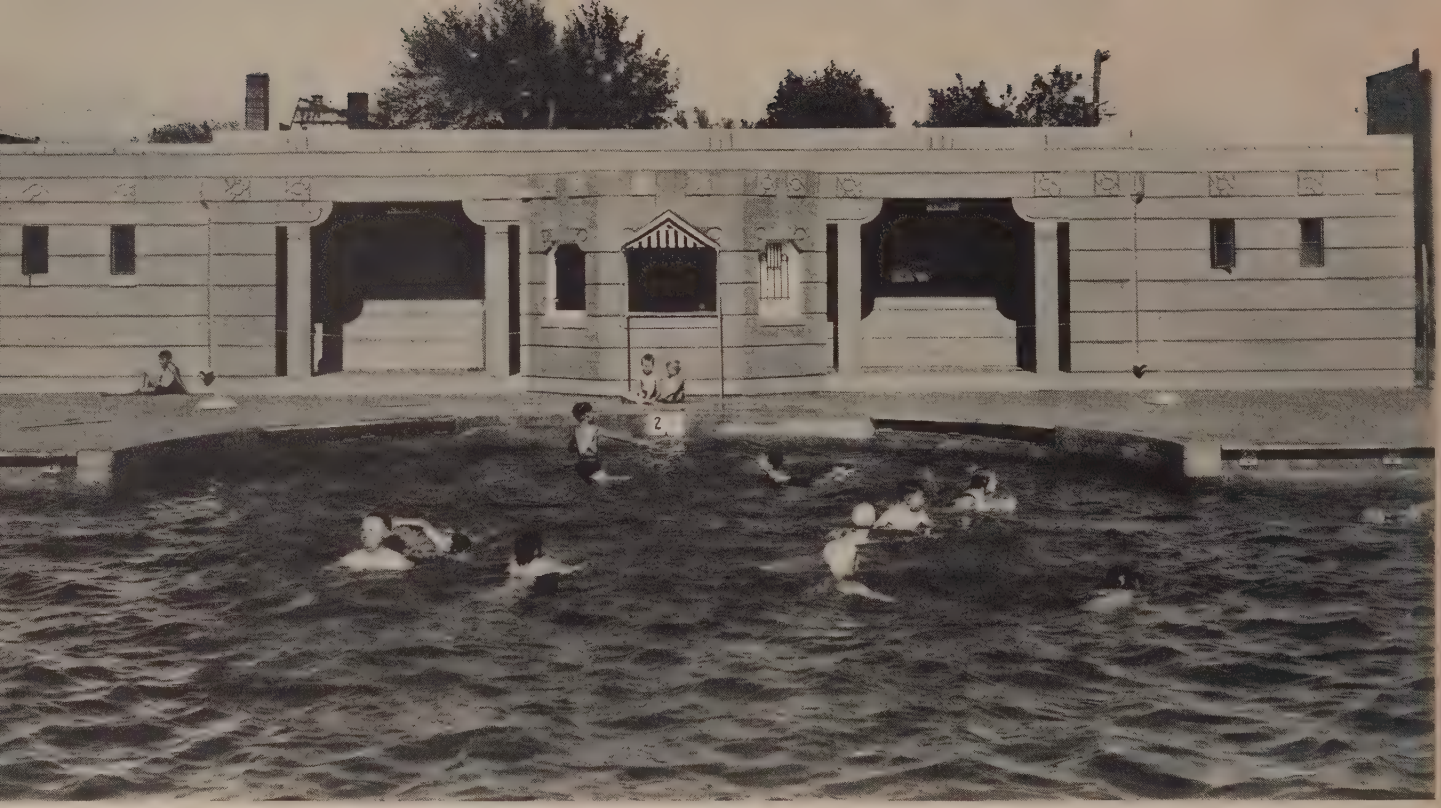
Inside the lobby there is a touch of Hollywood showmanship that appeals to movie fans. Set into the floor are 30 concrete slabs bearing the handprints and footprints of current film stars and above these slabs are photographs of the stars in the various acts of imprinting the slabs. This bank of pictures is surmounted by a facing of finely-matched marble and above the marble is a cove of wood veneer which extends over a part of the ceiling.

The foyer has wood-veneered walls and plaster ceiling, and here curved details at entranceways are reiterated in the design of the lighting devices and furniture.

Considerable saving was accomplished in construction of the auditorium by eliminating the conventional proscenium and erecting a free-standing screen. Carpet in the aisles of this room have light borders as an aid in finding seats in the quiet lighting of the theater. Acoustical tile was used on the auditorium walls while the suspended ceiling is finished with gypsum plaster.

In keeping with the present-day custom of including rentable store and shop space within a theater building, very desirable shop locations were incorporated in the spaces under the mezzanine.

In designing these shops exterior columns were eliminated by a cantilever roof slab which allows flexibility in the placing of dividing partitions as well as insuring a more open and pleasing appearance.



The pool and facilities at Arapahoe, Nebraska, built as a WPA project, were completed and open for use in May, 1937. A smaller project in every way than the one at Kearney, the service building is 60x25 ft., one story and part basement. The filter tanks are located at center rear of the first floor with dressing rooms for men and women at opposite ends of the building. Tank capacity is 166,000 gal.

Harmony In

By Hugh M. McClure*

CONCRETE used as an architectural material is new to this part of the Central West. For many years we have accepted concrete as an appropriate and suitable material for sidewalks, curbs and gutters, and more recently for hard-surfaced streets and highways. We have not questioned the use of concrete for workshop floors, for the floors in our own basements, for outside steps and many other lowly uses. Until now we have assigned concrete to a place in the gutter, actually and figuratively speaking. And in doing this we have assured for ourselves also a place in the same rut with concrete.

*McClure and Walker, Architects.

But concrete is no longer prostrate, nor will it longer be accepted as a low-lying, flat, drab slab, to be "walked all over" and "stepped on." We must recognize concrete as a respectable architectural medium, fully capable of standing up for itself, and fit for all the world to see. Concrete is ready to stand erect, to display its strength and beauty.

Many people think of an outdoor swimming pool as nothing more than a concrete-lined hole in the ground. This is as illogical as to think of a human being as only so many pounds of bone, tissue and water. The institution known as an outdoor swimming pool includes a tank—yes, but it also includes a service building, filtration plant, water recirculating system and an electric system. The tank, structures and various systems which make up a swimming pool must be designed to coordinate and to harmonize. They must go together and work together.

Since the purpose of this kind of institution is to maintain pure, clean, healthful water for swimming and bathing, and to provide proper environment for a body of water to be so utilized, each part and every unit must become a

The Kearney, Nebraska, swimming pool, built and operated by the city was opened to the public June 29, 1937. The service building, 80x25 ft in plan, contains dressing rooms, showers and checking facilities. A gravity type sand filter is located in the water treatment plant which occupies the basement of the service building. Capacity of the pool is 475,000 gal. with an 8 to 10-hour turnover. The tank is cleaned by a portable vacuum cleaner.

Materials

harmoniously coordinating part of the ensemble. It appears reasonable, then, that harmony of purpose of all the units might well be expressed through harmony in the materials which are to be exposed to view; and for that reason we chose architectural concrete for dominant use in the service buildings as well as for the walls and floors for the pools in our firm's latest swimming pools at Kearney and at Arapahoe, Nebraska. The pool at Kearney is 160x82½ ft. while the Arapahoe tank is 82½x40 ft.

Concrete is a plastic material, and because it is plastic we have attempted frankly to express this very plasticity in our architectural treatment. The walls are cast in strata, and the strata are made clearly evident, in fact they are accentuated. Ornamentation is cast in simply-made molds, and is *not worked over* once it is cast. Such imperfections as existed in the forms and in the molds were not "holy stoned" or fussed over, but were left to show their honest homeliness. Rather than attempt to imitate natural stone or to hide minor surface imperfections by plastering over them, we deliberately permitted the material to express its true character of rugged strength and permanence.

Using a plastic material in this frankly honest manner has resulted in a great deal of satisfaction to us and to the critical public. These pools and their attendant service buildings were built with a plastic material, cast in forms and molds—and, although the forms and molds are gone, one knows full well upon seeing what was cast that forms and molds must have been there. They tell their own story of accomplishment.

We believe that we see an inspiring future for architectural concrete in all types of design. It is an inspiring material because, in contemplating its use there appears to be the promise of almost limitless freedom from the necessarily accepted traditions imposed upon the imagination by the unyielding nature of many building materials. Only the threshold has been crossed, and just what may next be discovered cannot be foreseen; but we are confidently certain that each new development in methods of use will open the doors to the vast possibilities of concrete used architecturally.

Front elevation of new Knox County Workhouse erected in 1937 near Maloneyville, Tennessee. Designed by Frank O. Barber, architect, Knoxville, it was built by prison labor at a cost of $90,000.

Knox County Gets Modern Workhouse

By Frank O. Barber, A.I.A.

FOR many years Knox County, Tennessee, was burdened with an antiquated, overcrowded shack which was used as, but apologetically called, a workhouse. Time and again the Grand Jury, in session, condemned the ancient trap as unfit for the purpose for which it was used. Finally, when overcrowded conditions became so intolerable that the old structure was recognized as an alarming menace to health, a building committee was appointed to study the problem jointly with the writer, who was then county architect.

Many serious and apparently insurmountable problems confronted this committee, not the least of which was the limited sum of money available for a new structure. To assure the best possible use of this money, a study of jail and workhouse structures was undertaken by the architect and the committee who visited institutions in nearby states, interviewed members of local county courts, wardens, guards, cooks, and all others who might shed light on the problem.

It soon became evident that certain minimum requirements for jail design and construction were agreed upon unanimously by all those interviewed. These were: (1) the building should have a pleasing appearance both inside and out; (2) it should be low in maintenance cost and easy to operate; (3) a fireproof and as nearly as possible escape-proof structure was an absolute essential; (4) nothing should be sacrificed in providing adequate sanitary facilities; and (5) it was highly desirable to segregate white and negro prisoners as much as possible. All these factors involving appearance, economy, safety and comfort pointed to concrete as the most logical material for construction.

Other factors which made concrete a desirable and acceptable medium for the new work was the need to make all possible use of workhouse labor, to obtain construction materials from local sources insofar as it was practicable, and to keep the cost of the land, building and complete equipment within a strict budget of $90,000.

Having decided on an architectural concrete building, planning went ahead rapidly with every care taken to present pleasing appearance in a structure of definitely economical construction. To L. C. Shelton, a partner in the writer's private architectural practice, should go much credit for the pleasing results obtained.

When plans were finished and approved in mid-summer of 1936, Sherman D. Cox of Knoxville was appointed superintendent of construction and work was started in July of that year. The building was ready for occupancy in March of 1937. While workhouse inmates performed common labor operations, all skilled labor and mechanics of all trades were hired and paid rates prevailing in the vicinity.

The site selected for the workhouse was in rolling-hill country near Maloneyville, Tennessee. To avoid destroying the pleasing natural landscape and at the same time avoid the cost of extensive excavation, it was necessary to adapt the building to something of a hogback in the terrain. This permitted a variety of elevation effects which appropriately matched the modern lines of the architecture.

If there was anything unusual about the forming of the building it was the extreme simplicity of the work. To keep construction costs at a minimum, all superfluous and intricate detail was eliminated and line, surface texture and effective disposition of masses were relied upon to produce pleasing appearance.

To achieve the desired texture, smooth-surface T&G boards were used in forming the walls. They were braced by double 2x6 walers securely tied with pencil rod form ties. While no attention was paid to closing the joints tight, care at all times was taken that the sheathing be kept horizontal. The reason for this was that the walls were to be ground down enough to produce a rubbed finish, but not so far as to efface a desirable effect of strong horizontal form marks.

Construction joints were designed to occur at sill, lintel and second-story sill heights and at the roof. There were no joints at floor and roof levels.

An interesting example of the use of concrete is the boiler room chimney stack, which was built of brick-size cinder concrete units and later rubbed to a uniform color with the rest of the structure. This was an economical and practical solution to the problem of erecting a stack in harmony with the general architecture of the plant.

Floor construction throughout the building, with the exception of two small corridors, is of the T-beam type cast in wood forms. All interior surfaces of concrete, including walls and ceilings, were given a rubbed finish. Floors were placed in two courses, a structural and a wearing course, and a good job was done.

For all the concrete work a water-cement ratio of 7½ gal. per sack was specified and rigidly maintained. This provided a workable mixture and greatly aided production of the desired surface texture.

The total cost of the building was $90,000, including five acres of land, a sewage disposal field, and all equipment for furnishing and operating the building. Since the building contains 546,000 cu. ft., the cube unit cost was about 16½ cents. Against this low figure should be weighed, however, the fact that common labor was supplied by workhouse inmates. As a prison labor project, Knox county officials agree this type of work is among the best. When prisoners are put to work on practical jobs they give less trouble than when they are engaged in useless tasks such as making little rocks out of big ones. Architectural concrete work provides many useful jobs for workhouse labor.

erior view of one of the wings ws use of exposed concrete.

e building was designed to form to rolling hill terrain, ducing pleasing architectural cts although the walls are ply formed.

Architectural CONCRETE

ARCHITECT · ENGINEER · CONTRACTOR

IN THIS ISSUE

The SALAD BOWL OF THE WORLD (page 3) is served up with a snappy concrete DRESSING . . . HUNLEY ABBOTT describes (page 6) a neat way for getting around those NO PARKING LAWS . . . THE PLAY'S THE THING says (page 9) MASON RAPP in discussing modern theater design problems . . . HUGH McCLURE takes concrete OUT OF THE GUTTER (page 12) and puts it in BATH HOUSES . . . FRANK BARBER tells how (page 14) Knox County, Tenn., workhouse boys did a job for themselves . . . A four-page data sheet on MUNICIPAL BUILDINGS will be found (pages 17-20) ready for your A.I.A. files . . . R. C. REESE discusses (page 21) a stadium with a cantilever roof . . . It takes three pages (25 et sequor) to show just a few 1938 projects . . . They SKATE in Grand Rapids Warehouse, but that's not why WM. H. McCARTY (page 28) designed it . . . West Palm Beach Postoffice is a SMOOTH JOB, says (page 30) A. FARNELL BLAIR . . . ALL THE KING'S HORSES, it is inferred (page 32) by G. P. LAGERGREN, couldn't fill this barn . . . ALL IS NOT GOLD that glitters at Fort Knox (page 34).

Published by
PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue
Chicago

Talk with an Old Timer

ON a visit around the country last winter we met an architect who has done many fine things in concrete—so fine, we thought, that he should sit down immediately and do an article about them and his experiences.

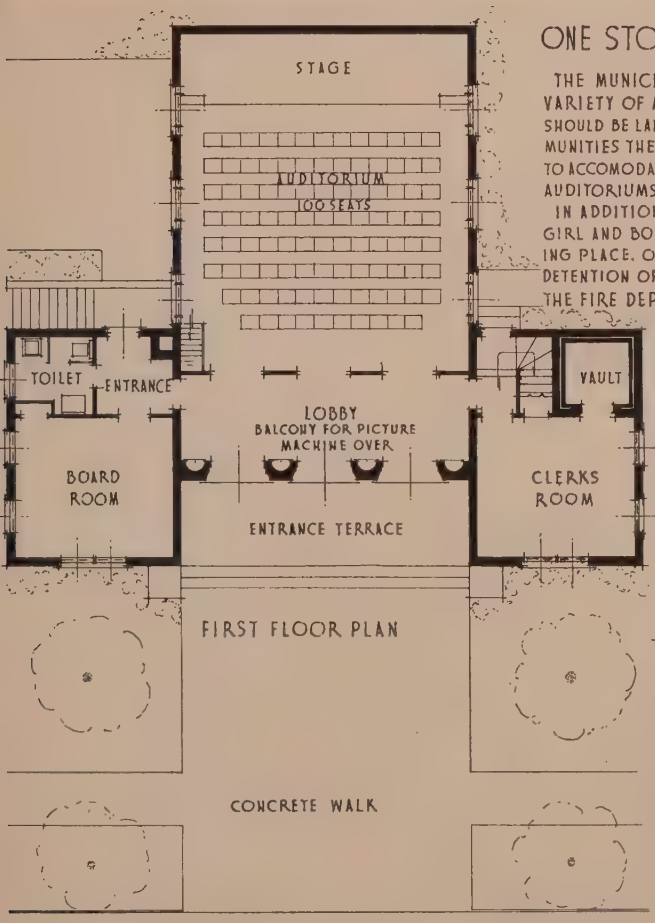
"Nothing would give me greater pleasure," he said, "but you will have to wait until I finish one more building, and if everything goes right, it will be started soon." Then, answering what must have been a quizzically-raised eyebrow, he continued. "Yes, I have done schools, offices, power plants, houses, hospitals and commercial buildings in concrete, and I am proud of most of them. But with this new building—if it comes—I can prove to myself that concrete is fit and proper for any type of structure, for any occupancy; and that is what I have wanted to know."

"This will be your masterpiece?" we ventured.

"On the contrary, it will be just the beginning. It will mark the final break with my stuffy conventionality and will show me the way I shall go in the years I have left to go on. You see, I am rather old in the profession. I was brought up in a school of several centuries of habit and was doing very well until I found that the young boys in my office knew more about architecture and what was happening to it than I did. For the past few years I have been an old dog jumping through hoops and turning flip-flops, and now I am just about ready to show off.

"Architecture today is in a transitional state, but it indicates what marvelous conceptions of form loom ahead. The Golden Era of contemporary architecture lies 30 to 50 years in the future, but those of us who have tossed off inhibitions are going to have a large hand in its development. It will be fun for the rest of my life, and I figure that those who are familiar with concrete and its willingness to take new forms will have the most fun of all."

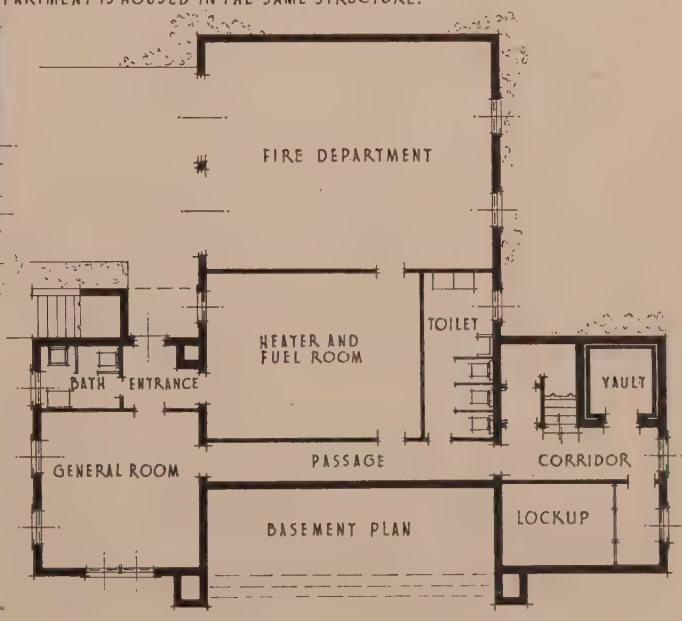
MUNICIPAL BUILDINGS

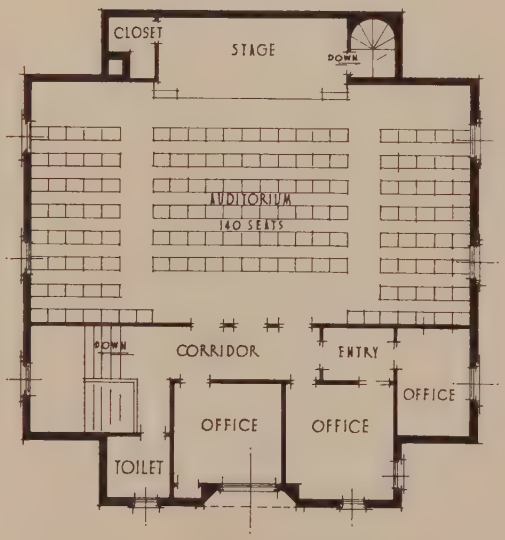


ONE STORY AND BASEMENT MUNICIPAL BUILDING

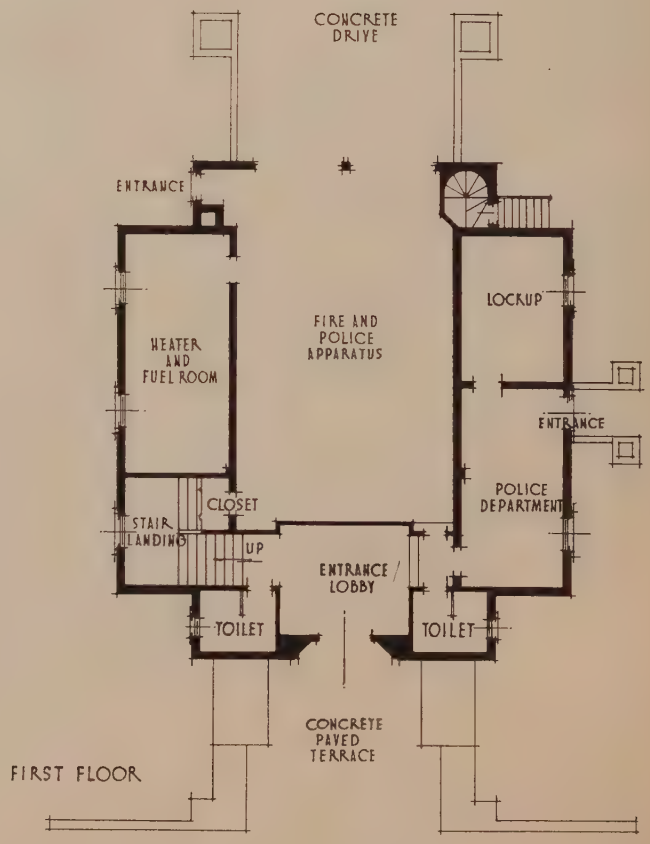
THE MUNICIPAL BUILDING FOR THE SMALL TOWN IS USUALLY LAID OUT TO HOUSE A VARIETY OF ACTIVITIES. FOR TOWNS OF LESS THAN 1500 POPULATION THE AUDITORIUM SHOULD BE LARGE ENOUGH TO SEAT ABOUT ONE FIFTH OF THE POPULATION. IN LARGER COMMUNITIES THE ASSEMBLY ROOM IN THE MUNICIPAL BLDG. WILL ORDINARILY BE DESIGNED TO ACCOMODATE A SMALLER PERCENTAGE OF THE POPULATION BECAUSE CHURCH OR SCHOOL AUDITORIUMS WILL BE USED FOR LARGE GATHERINGS.

IN ADDITION TO THE AUDITORIUM A GENERAL ROOM IS PROVIDED FOR CLUBS SUCH AS GIRL AND BOY SCOUTS AND OTHER COMMUNITY GROUPS. THIS ROOM ALSO SERVES AS A POLLING PLACE. ONE OR TWO ROOMS FOR THE TOWN CLERK OR MAYOR AND A SMALL LOCKUP FOR THE DETENTION OF A PRISONER USUALLY COMPLETES THE SMALL TOWN MUNICIPAL BLDG. UNLESS THE FIRE DEPARTMENT IS HOUSED IN THE SAME STRUCTURE.





SECOND FLOOR

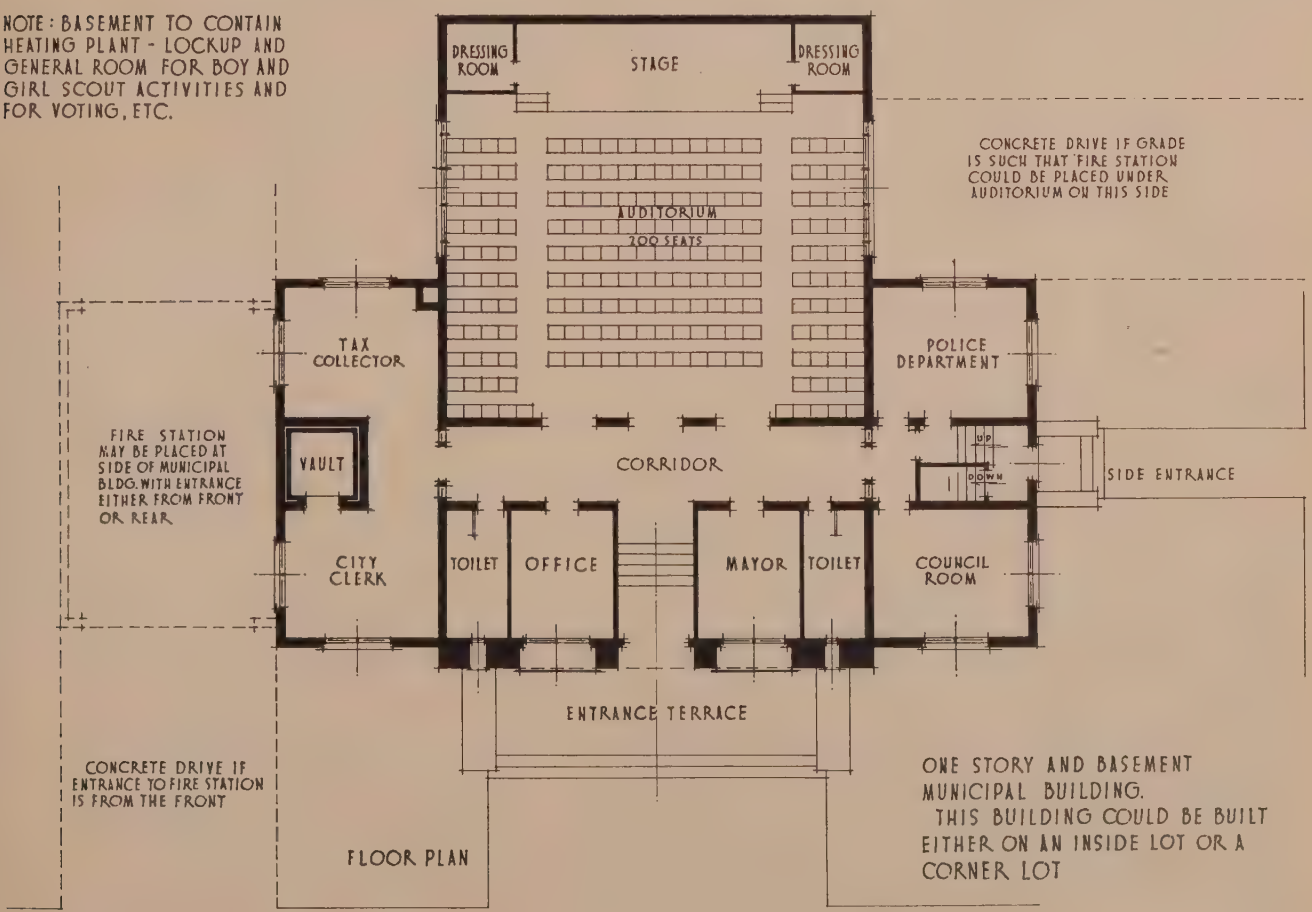


FIRST FLOOR

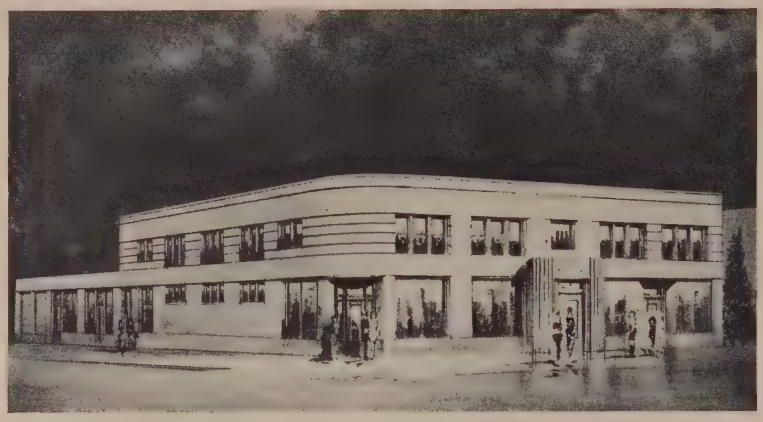
TWO STORY MUNICIPAL BUILDING
WITH CITY OFFICES - AUDITORIUM -
FIRE AND POLICE STATION

THIS BUILDING COULD BE BUILT EITHER
ON INSIDE LOT OR A CORNER LOT

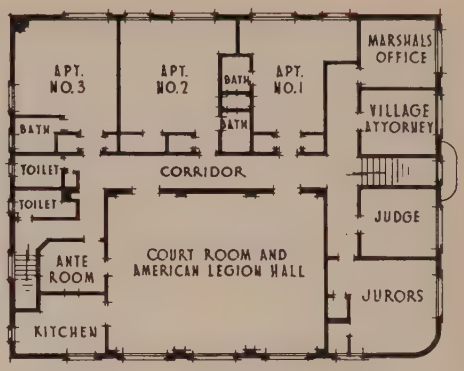
NOTE: BASEMENT TO CONTAIN HEATING PLANT - LOCKUP AND GENERAL ROOM FOR BOY AND GIRL SCOUT ACTIVITIES AND FOR VOTING, ETC.



ONE STORY AND BASEMENT MUNICIPAL BUILDING.
THIS BUILDING COULD BE BUILT EITHER ON AN INSIDE LOT OR A CORNER LOT



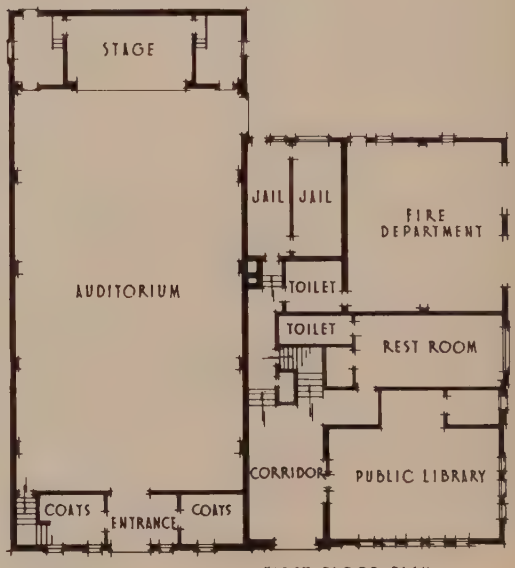
MUNICIPAL BUILDING COMBINED WITH RENTABLE SPACE-COURT ROOM AND AMERICAN LEGION HALL IS INCLUDED IN THIS PLAN AT BAUDETTE, MINN.
FREDERICK C. KLAWITER - ARCHITECT
ST. PAUL, MINN.



SECOND FLOOR PLAN

FIRST FLOOR PLAN

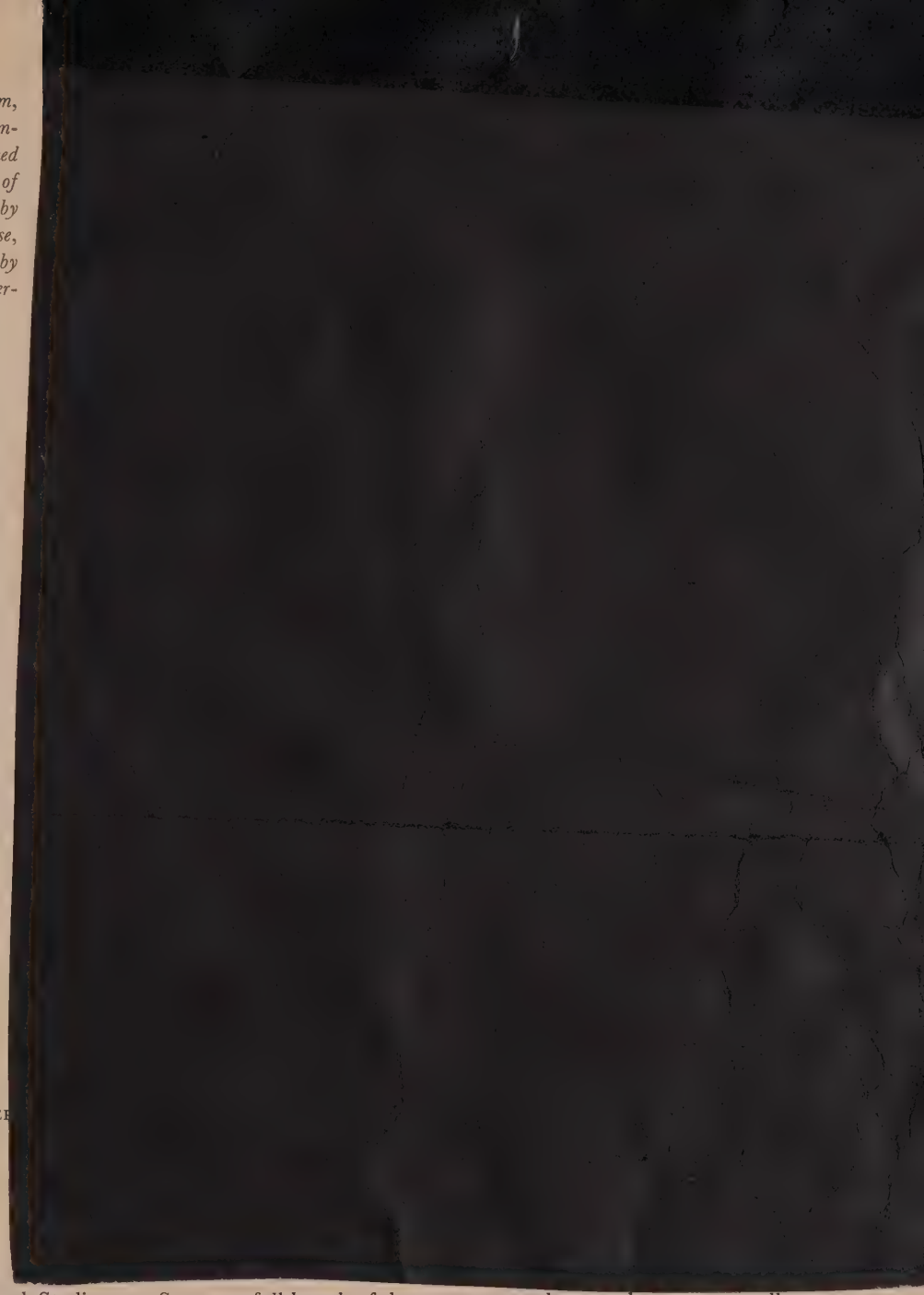
SECOND FLOOR PLAN



FIRST FLOOR PLAN

MUNICIPAL BUILDING INCLUDING FIRE DEPARTMENT - PUBLIC LIBRARY AND HISTORIC MUSEUM AT ROSEAU, MINN.
FREDERICK C. KLAWITER - ARCHITECT
ST. PAUL, MINN.

Published by Portland Cement Association • 33 West Grand Avenue • Chicago



Main entrance of High School Stadium, Strobel Field, Sandusky, Ohio. Bush-hammered surfaces contrast with smooth-finished bands around spandrels and at sides of pilasters. The stadium was designed by Harold Park, architect, and R. C. Reese, structural engineer. The work was done by WPA labor under Thomas Millar, superintendent.

Concrete in Modern Stadium Design

By R. C. Reese, Structural Engineer

ALTHOUGH the new High School Stadium at Sandusky, Ohio, is comparable in size and construction to many other stadia erected during the past few years, there are features of its design that may interest other architects, engineers and builders engaged in this ever-widening field of public work.

Located on the west side of Strobel Field facing east, the question of orientation of the stadium was not serious because a majority of football games are played at night under floodlights. In general, the stand consists of 40 rows of seats having a length of 209 ft., affording a seating capacity for between 5,000 and 6,000 people. The rear rows are protected by a reinforced concrete cantilevered roof the full length of the structure; and, more than many a college stadium can boast, Strobel Field Stadium has glassed-in press box and radio booths at the center of the structure under the roof.

To provide maximum vision from stands of this depth, the seats are set higher toward the rear so as to give a dished or bowl effect to the cross section. Space underneath the stand is utilized for team dressing rooms, concessions, power plant and other services.

Because Strobel Field is isolated from other school buildings, it had to be considered as a separate unit, housing all the usual facilities that go with a stadium and, in addition, a transformer room to take care of flood-lighting equipment.

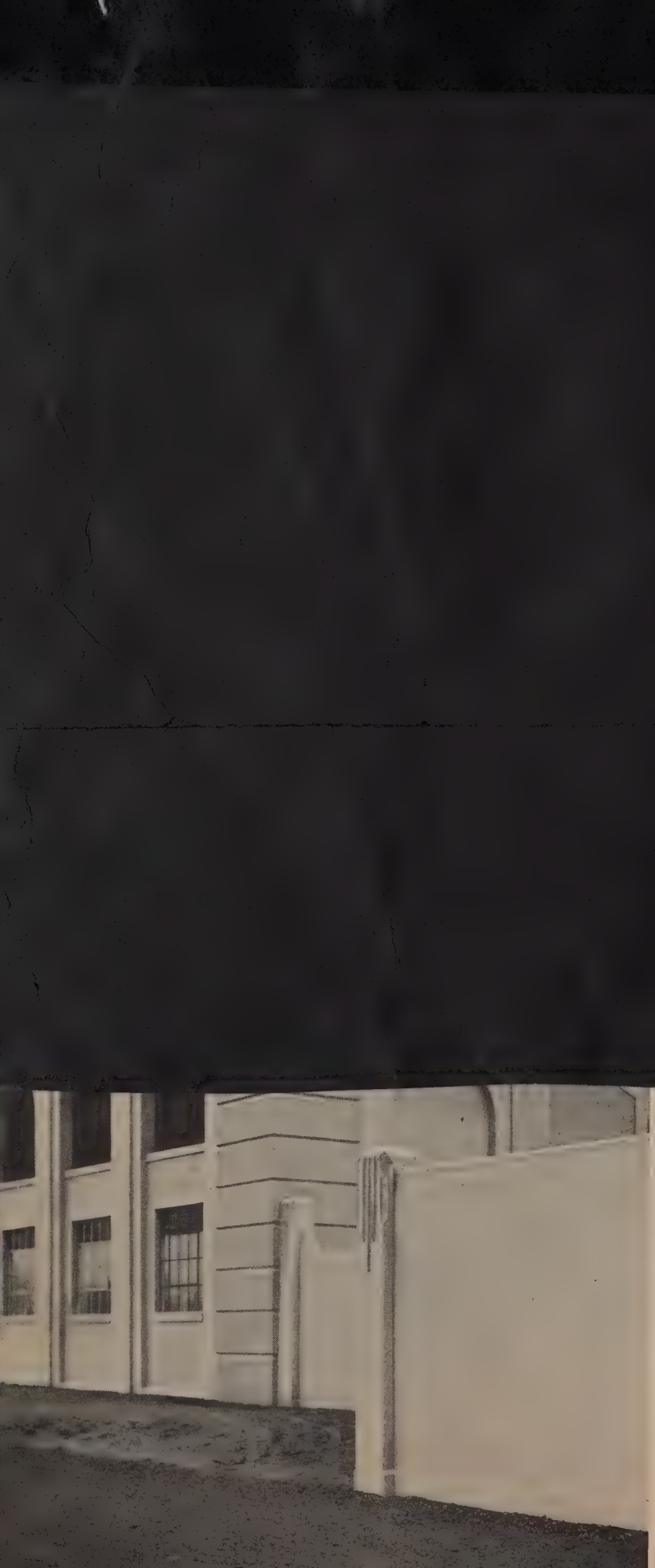
ively little expense through proper group-
eeping with the character of the structure.
vided over the rear 14 rows of seats. For
ons and to assure unobstructed view, no
sired under the front edge of the roof.
oth steel and reinforced concrete resulted
rete for these reasons: better appearance,
e cost, economical first cost and the fact
d be done on the site, thereby providing
f local unskilled labor.

otal width of 26 ft. 8 in. and is designed
40 p.s.f. It comprises 6+2-in. ribbed
and 25 ft. to reinforced concrete canti-
ese girders transmit the moment down
nd through the main floor beams under
porting columns.

arance requirements were established
roof were completed, making it neces-
et the tops of the girders project above
roof slab to maintain headroom below.
tops of the girders are in tension, there
rifice of T-beam action, but there was a
mplication of making the roof tight over
jecting ribs. Fortunately, it was possible
elatively deep piers or buttresses with-
fering with the line of vision so that the
moment from the cantilevers was
arried down these piers. Considerable
was given to the detailing of the tail-
nderneath the deck, as they had to be
over normal requirements to take care
ge negative moment.

ructural concrete frame was of practi-
ndardized type. Since the foundation
edge rock, no footings were required
n a mat of concrete under each column
off any roughness. These mats were
to the rock to resist any horizontal
thrust. Reinforced concrete columns support the girders which, in turn, support the risers which act as beams. The dugouts for players' benches are of reinforced concrete, with integrally placed brackets to support seat planks and cantilevered roof slab.

Forms were generally dressed lumber. No staff mold was used and no special millwork sections were needed except the half-rounds or ovals used to form column fluting. After strip-



End view of the stadium showing the rusticated and bush-hammered concrete pilaster which has the appearance of quoins. The entire field is surrounded by a concrete fence, part of which is shown here.

A reinforced concrete cantilevered roof extends the length of the stadium.

ping forms the buttresses were bush-hammered and also the flat wall surfaces except a band around each panel which was ground with a carborundum stone.

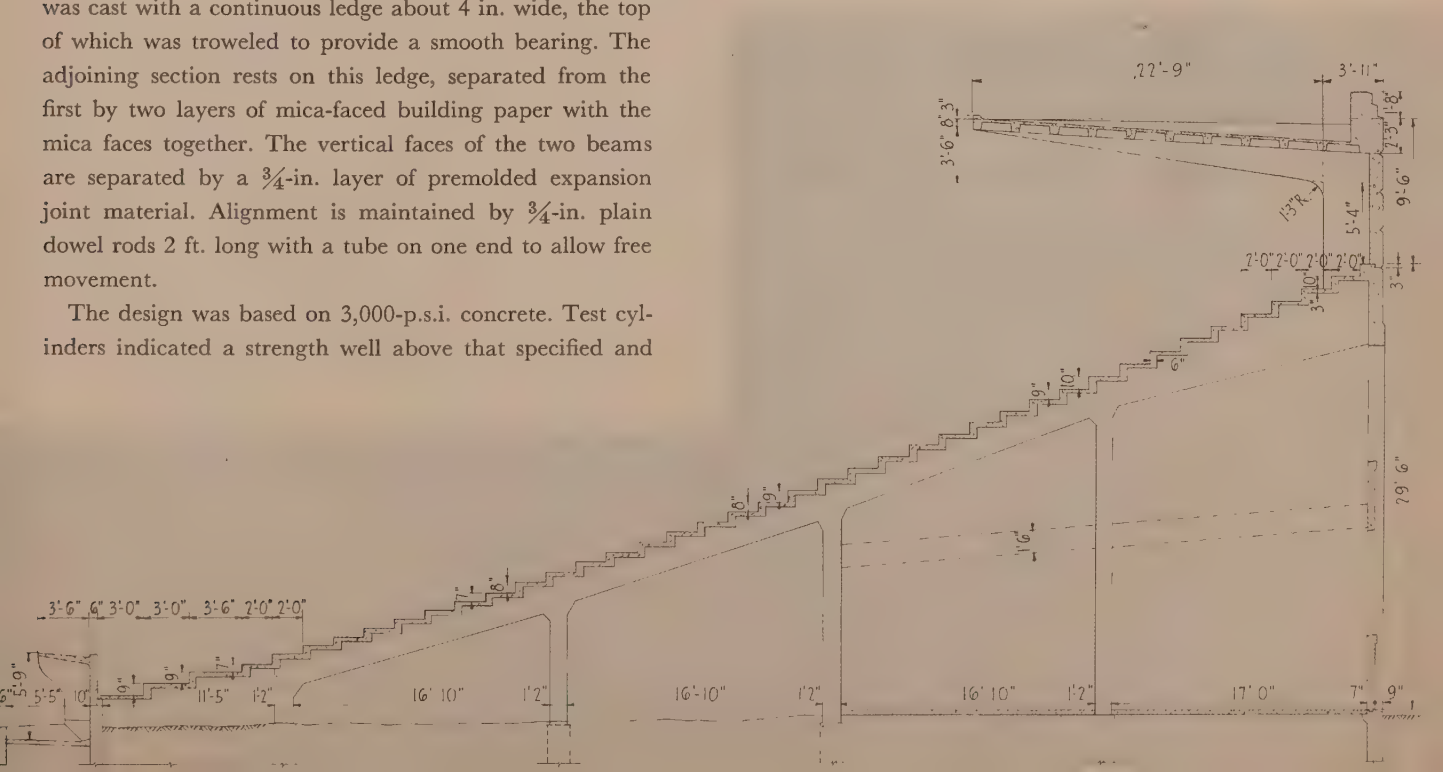
The spacing of expansion joints in an exposed structure is always something of a problem. Based on past experience this structure was subdivided into five sections by transverse expansion joints spaced about 44 ft. apart. The joints extend from the top of the footings through the back wall, the seat bank and the cantilevered roof at the back of the stadium and the small cantilevered roof over the dugout. In other words, the structure was subdivided into entirely independent sections by joints which cut vertically down through all the members. No longitudinal joints were used.

In many cases expansion joints are obtained by constructing double columns and beams with a clear space of about 1 in. between them. The difficulties of forming this narrow space to a perfectly true line led us to depart from that practice. The beam of the first section adjacent to the joint was cast with a continuous ledge about 4 in. wide, the top of which was troweled to provide a smooth bearing. The adjoining section rests on this ledge, separated from the first by two layers of mica-faced building paper with the mica faces together. The vertical faces of the two beams are separated by a ¾-in. layer of premolded expansion joint material. Alignment is maintained by ¾-in. plain dowel rods 2 ft. long with a tube on one end to allow free movement.

The design was based on 3,000-p.s.i. concrete. Test cylinders indicated a strength well above that specified and higher working stresses in the concrete would have been permissible. Generally, however, we specify high ultimate strength concrete in exposed structures to obtain a dense, waterproof, workable mix.

The roof was designed for a live load of 40 p.s.f. and the stands for a live load of 80 p.s.f. While this live load may seem low, it must be borne in mind that the dead weight of the concrete stand is greater than the live load and an increase of 50 per cent of the load would not increase stresses more than 20 per cent. On a light timber or steel stand, where the live load is a large part of the total, a greater live load must be assumed as the stresses in that case increase almost proportionally to the applied load.

Strobel Field Stadium was designed by Harold Parker, Sandusky architect. The writer handled the structural design and the construction was done by WPA forces under the direction of Thomas Millar, superintendent.



Chelsea Memorial Stadium (left) was built during the winter of 1934-35 at Chelsea, Mass. Seating 8,000 and costing less than $10 per seat, it was designed by Feer and Eisenberg and built by ERA workers.

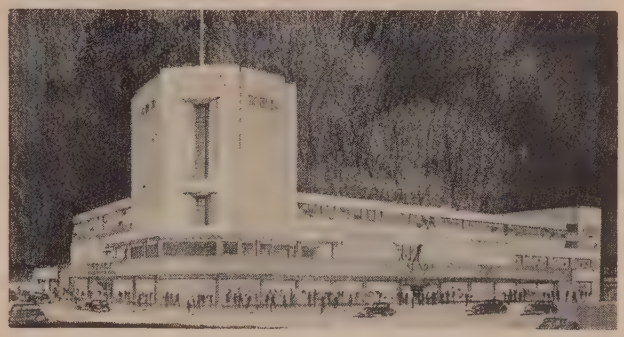
Most recent addition to the facilities at the Arizona State Fair is this new architectural concrete grandstand, (right and below) known as B. B. Moeur Stadium. Precast grilles and medallions decorate the long high wall of the structure. H. H. Green was the architect. Construction was by WPA labor.

File 10-7-1 Being Letters, Notes and Advices About ARCHITECTURAL CONCRETE

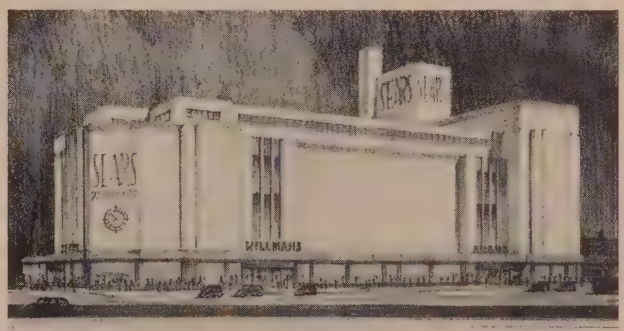
WHEN File 10-7-1 started more than three years ago, it was a thin little envelope in a big new file. Today, at the start of Vol. 4 of ARCHITECTURAL CONCRETE, the file is packed full of news of past, present and future jobs—and to keep it from overflowing we have to spread out to three pages this time. All these projects were finished, under way or ready to go at press time.

Construction of the Schlumberger Well Surveying Corporation building, Houston, Texas, is now under way by Hubbard Construction Co. The design was prepared by the Russell Brown Co., with W. A. McElroy as architect.

Wenzel & Henoch Co., Milwaukee, has the contract for this water tower which is part of a $1,300,000 waterworks program undertaken by the town of Lake, Wis. Designed by William D. Darby, consulting engineer of West Allis, Wis.

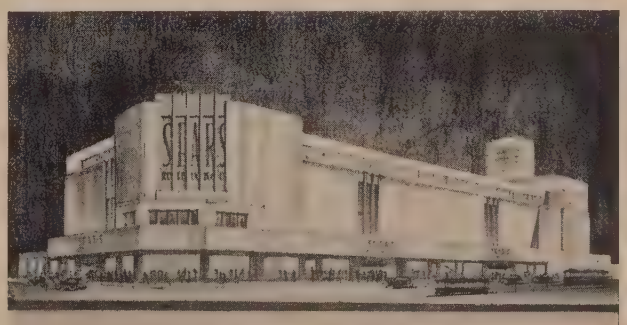


Perspective of Sears, Roebuck & Co. building recently erected at Glendale, Calif., by Ford J. Twaits Co., Los Angeles, contractor; Nimmons, Carr & Wright, Chicago, architects.



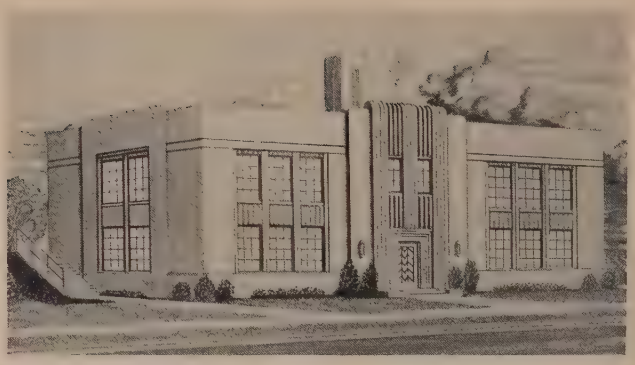
Lundoff-Bicknell Co. has been awarded contract for the new Sears, Roebuck & Co. retail store in Chicago. Nimmons, Carr & Wright, architects.

Now under construction at Baltimore is this new Sears, Roebuck building. Consolidated Engineering Co., contractor; Nimmons, Carr & Wright, architects.



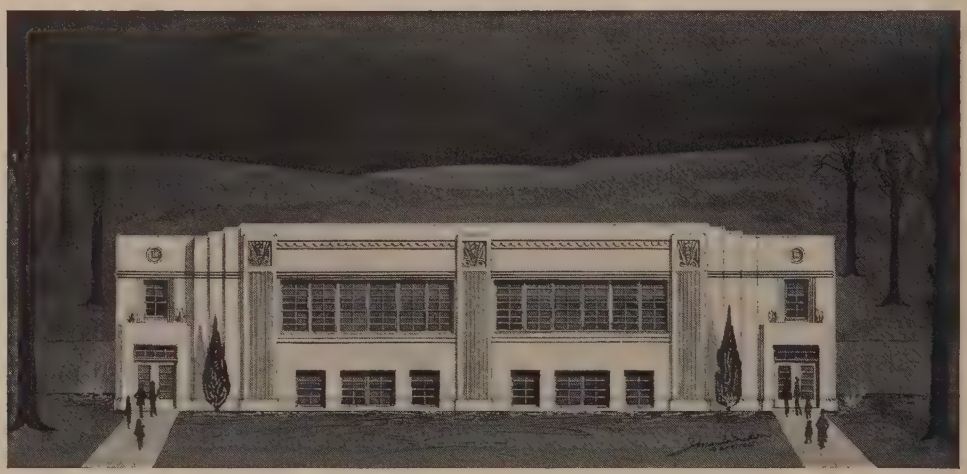
Just completed at Highland Park, Mich., is another Sears, Roebuck building. Nimmons, Carr & Wright, architects; Patterson Engineering Co. of Detroit was general contractor.

Eric Carlstrom Construction Co. has the contract for the Mankato, Minn., water filtration plant. Henry Gerlach, architect, and Northern Engineering Co., engineer.



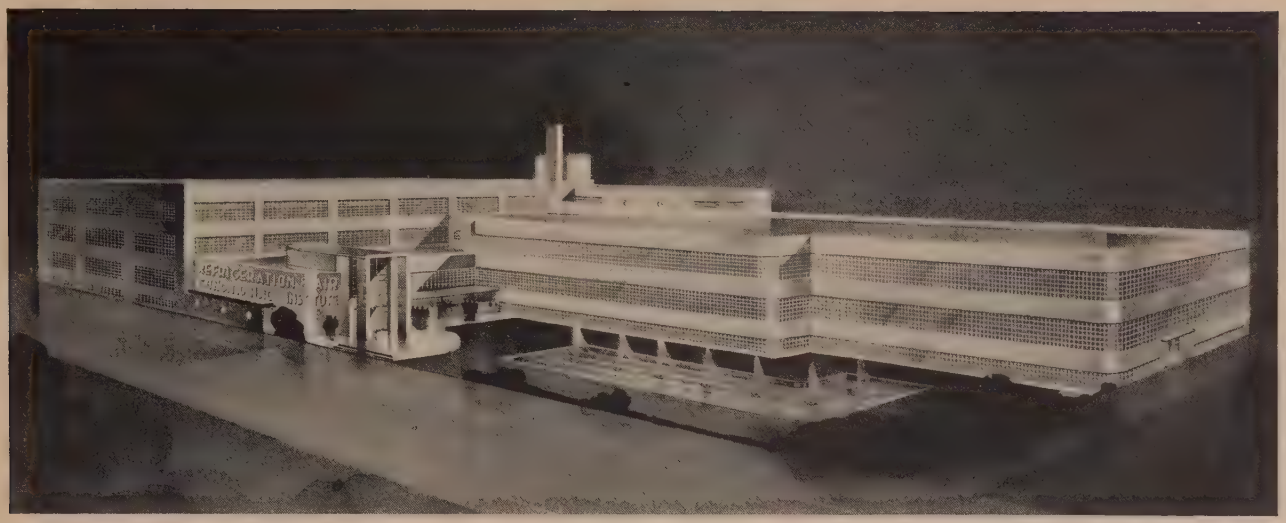
Project for the new sewage treatment plant at Virginia Beach, Va., now under construction. Wiley and Wilson, consulting engineers, and Tidewater Construction Corp., contractor.

Milwaukee's new Temple of Music, an architectural concrete bandshell now under construction, is the gift of Emil C. Blatz, scion of the well-known Milwaukee brewing family. Fitzhugh Scott is architect, and Selzer Ornst Co., contractor for this $100,000 project in Washington Park.

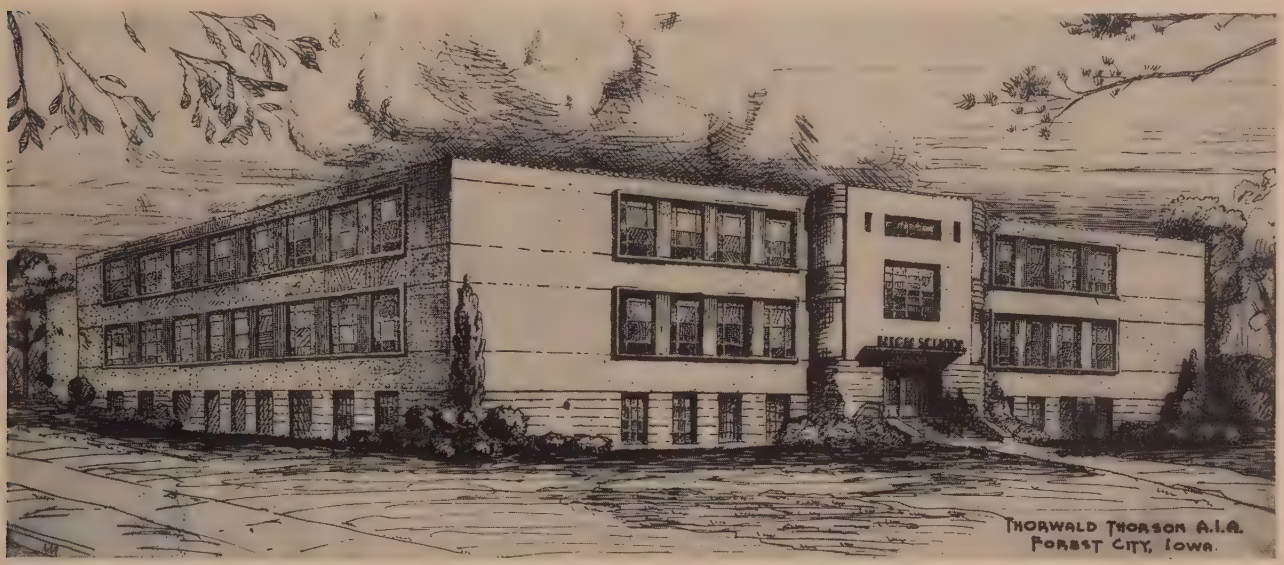


Bids were being taken early this spring for a new architectural concrete school at Fontana, Wis. J. Mandor Matson is architect of this modern grade school building.

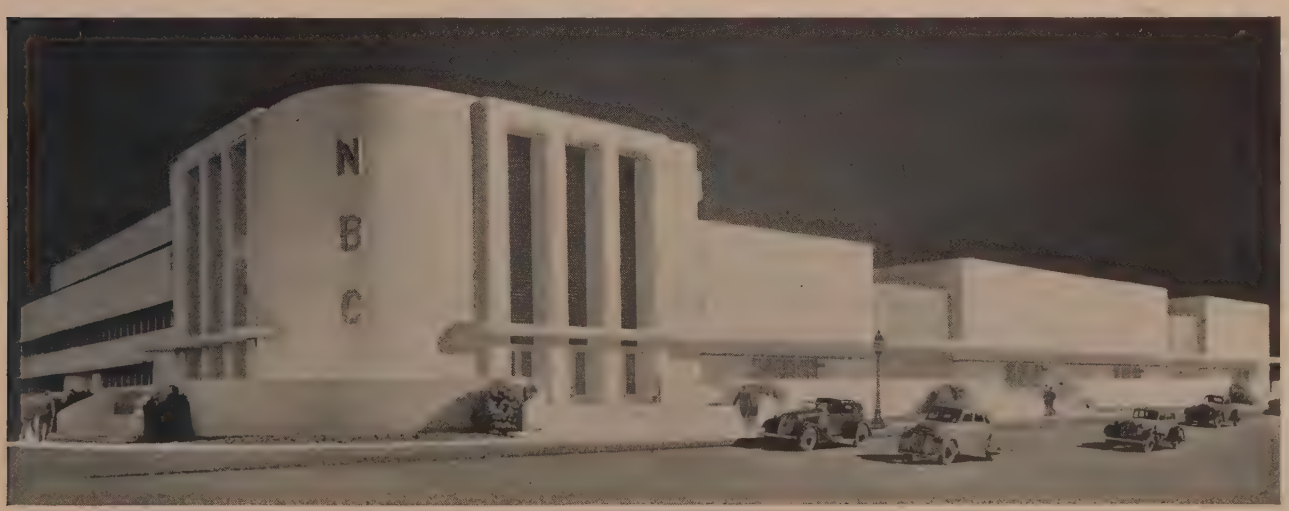
Plan for Ocean View School, Norfolk, Va. Ferguson, Meakin and Moore are architects. W. L. Larrimore has the contract for the foundations.



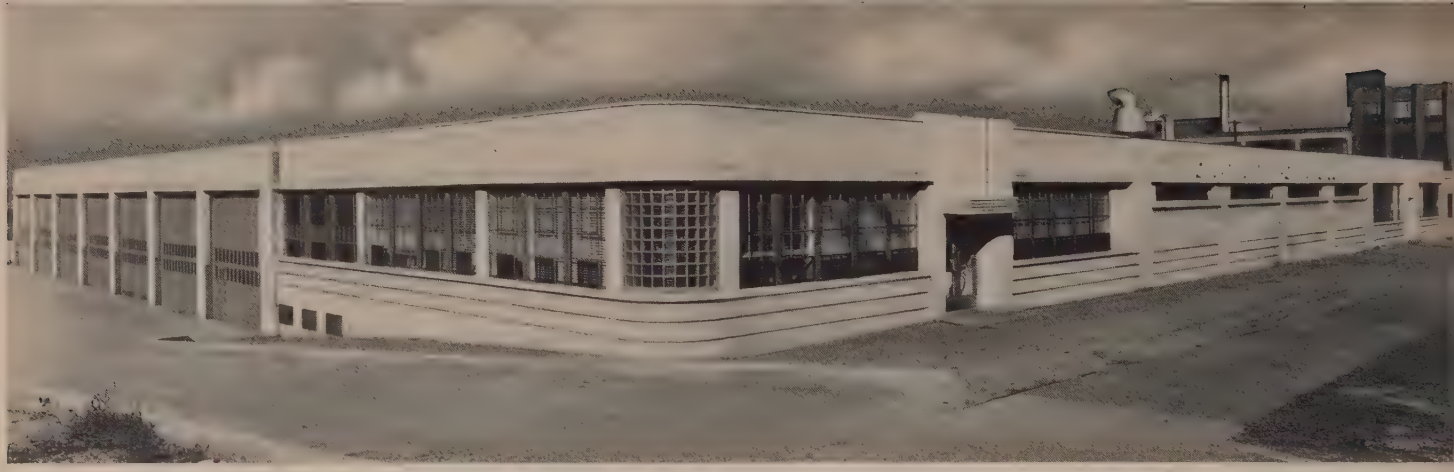
Carl E. Erickson and Co., Inc., has been awarded the contract for the Refrigeration and Air Conditioning Institute building, Chicago. Pereira and Pereira, Chicago, are the architects.



Project for Tama (Iowa) High School, under construction by James Thompson & Sons of Ames. Thorwald Thorson of Forest City, Iowa, is the architect.



Work is progressing rapidly on the NBC Studio Building, Hollywood, Calif. The Austin Company is designer and builder.



Adverse building conditions and economy prompted the choice of architectural concrete for the new warehouse for the Grand Rapids Wholesale Grocery Co. Knecht, McCarty and Thebaud were architects, and Barnes Construction Co., the builder.

New Warehouse For Grand Rapids

By Wm. H. McCarty*

PRESSING need for immediate expansion of facilities made it necessary for the Grand Rapids Wholesale Grocery Company to order construction of its new warehouse early in 1937 during the most unsettled months the construction industry suffered. At that time building costs had soared to almost prohibitive levels. Labor, anticipating activity approaching boom-time proportions, was restless—and this restlessness and uncertainty contributed to the unwillingness of manufacturers in most lines to accept any contracts based on a specific date of delivery. The problem of providing required facilities within the appropriation, and to assure the owner of any reasonable date of completion might have been very difficult in the face of these general conditions.

*Knecht, McCarty and Thebaud, Architects.

Warehouse workers ride the smoothly finished concrete floors on skates.

Despite this uncertain outlook, the Grand Rapids warehouse went forward to rapid completion, and this was undoubtedly due to the selection of reinforced concrete for the structural and architectural treatment of the building. This material, in addition to its natural advantages, successfully met all the demands imposed by prevailing conditions. Cement, sand and gravel had not increased in cost; the major portion of the labor required on the job was generally free of unrest; and elimination of any delays in delivery of materials permitted the construction to proceed in normal manner.

The building was completed for occupancy within three months at a unit cost of $1.47 per sq. ft., including all mechanical equipment and elevators. The cubic foot cost of 11 cents was considered excellent.

The building is 200x200 ft., one story and basement. It comprises 80,000 sq. ft. of floor space of which 68,500 are devoted to warehouse facilities, 5,600 for truck loading space, 2,400 for the coffee roasting department and 3,500 for general offices. A railroad siding along the north side provides unloading facilities for five cars, and a covered concourse on the south side accommodates fourteen large motor lorries protected from the elements by motor-operated rolling shutters.

The first floor was designed for a live load of 350 p.s.f. An analysis of various types of floor construction resulted

in the adoption of a flat slab, drop panel construction with columns spaced 20 ft. on centers being most economical. Since all interior partitions are constructed of lightweight concrete masonry, this column spacing permits future subdivision of the building into any desired occupancy, enhancing the potential resale value. The basement floor is placed on gravel fill and the roof is of concrete joist construction. Hard, wear-resistant floor surfaces were obtained with a ¾-in.-thick concrete topping composed of portland cement and quartz aggregate applied while the base slab was still plastic. This finish was screeded and hand floated, and after thorough curing was machine ground to a smooth finish.

Bold, modern letters of concrete are a definite part of the decorative treatment of the main facad

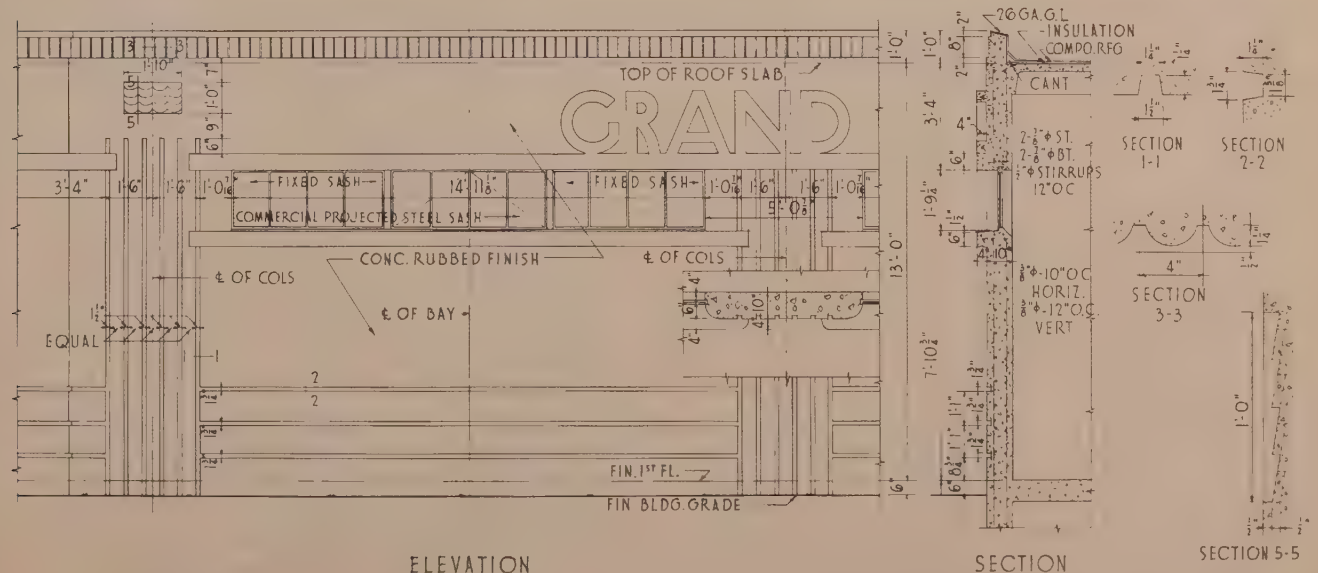
Exterior walls are reinforced concrete with all decorative detail cast in place. Plywood form liners were used for smooth surfaces and white pine moldings for ornamental detail. The lettering on the main facade, large, bold and modern, was cast in galvanized iron forms.

Extreme care was taken to remove all excess oil from the face of the plywood and other forms. Joints in the formwork were carefully filled with a cement-tallow mixture. As a result of these precautions, when the forms were removed very little rubbing was necessary to achieve the desired finish. No treatment of any nature was applied to the exterior concrete.

Elimination of condensation is an important factor in this type of a structure. Celotex insulation was provided for the roof slab, and 2-in. Haydite masonry was applied to the inside face of all walls in the office portion of the building. Since it was contemplated that the warehouse proper would be heated to about 50 degrees, the 8-in. exterior wall was considered sufficient to prevent condensation. Experience during the past winter has justified this assumption.

Considerable time was saved in construction by pumping the concrete into place. With a pump the contractor was able to place as high as 27 cu. yd. of concrete per hour in the floor and roof construction. This method of placing eliminated a large number of construction joints. All concrete was vibrated with internal vibrators.

The building is heated by gas-fired units located throughout the structure. An automatic gas furnace and air conditioning system was provided for the offices with individual gas-fired blowers, controlled in five zones, heating the warehouse. This type of heating has released valuable space for storage in the basement which would otherwise be occupied by boiler and fuel rooms.



TYPICAL BAY

The fine, smooth wall surfaces of the new West Palm Beach (Florida) Postoffice are the result of a technique of forming carefully followed by the contractor, A. Farnell Blair. This modern structure was designed by the United States Treasury Department.

Technique For Smooth Surfaces

By A. Farnell Blair, Contractor

ALTHOUGH our firm has had wide experience in the reinforced concrete field, it was not until recently that any of our contracts have called for a complete job with exterior walls of architectural concrete. The West Palm Beach Postoffice represents our first attempt in the latter field, and this work has served to show us that certain standards of construction and technique, not required on other classes of concrete construction, are of paramount importance in architectural concrete work.

One thing for certain we have learned: that it pays to use only the best methods of forming, mixing and placing concrete. Warped surfaces, ragged corners and honeycombed areas are not acceptable, nor are they unavoidable when proper attention is paid to detail. When forms are stripped there should be exposed a concrete surface requiring little attention to achieve its final appearance. Patching and treating irregular surfaces have two serious drawbacks: one is that such doctored surfaces seldom present the same pleasing appearance of natural concrete properly placed; the other is that it is not only more satisfying to do the work properly, but it is cheaper.

The temptation to make use of all available equipment on hand, regardless of its suitability for architectural concrete work, often causes contractors to pursue improper methods which later may be regretted. We had these temptations, too, but experience has made us wiser. If something is not suited to the purpose, don't be afraid to leave it in the shed and use something better. For instance form ties frequently enter such a dilemma. Most contractors have on hand a set of ties of some type, but very often they are not suited to architectural concrete. They should be saved for other work and the right tie used.

The use of form ties is an important factor in achieving fine concrete surfaces. When the concrete is left with spalls, wide holes and irregularities where form ties occur, these blemishes must be patched—a remedy which leaves unsightly spots. Any tie creating this condition is unsuitable, particularly when the concrete surface is to remain without rubbing or other finish treatment.

Thin, smooth pencil rods, which can be completely pulled out of the concrete, are far superior to any other type of tie, in our opinion. Various devices can be used for securing them at the ends. Tools for pulling rods are available. By cutting the rods at the outer surface before pulling and withdrawing from the back of the wall, it is almost impossible to detect the spot or hole left by the rod even before it is filled. Such holes may be plugged easily by forcing thin mortar from the back, using a grease gun or other device to force the mortar through. Simply striking off the mortar at the outer surface with a burlap pad finishes the job.

Wood spreaders are used in conjunction with pencil rods. Many ties have automatic spreader devices and some contractors are inclined to favor this feature. Unfortunately

this spreader is a source of annoyance in marring finished concrete surfaces, and for that reason is generally undesirable. Wood spreaders are not difficult to handle and are easily removed from the forms before placing concrete by means of a simple device which grips the spreader. A fish gaff with spring jaws that grip the spreader when they come in contact with it may be placed on a long wooden handle to reach into deep forms. It is a useful tool also for retrieving hammers, saws and other objects dropped down the forms.

Another advantage of the pencil rod type of tie, free from spreader device, is its flexibility. Regardless of the thickness of wall or length of tie required, it is only necessary to cut a length of steel rod to suit the need. This will be found useful.

The West Palm Beach Postoffice specifications called for a smooth surface on the principal areas of the exterior wall, with the final texture to be obtained by rubbing with carborundum stone. The use of regular form sheathing, combined with heavy carborundum grinding to obtain such a finish, is not satisfactory; the extensive grinding required is too expensive and it is even then impossible to remove all traces of board marks. Although ridges are ground down flush, the aggregate is exposed in terrazzo fashion, producing a different appearance from the unground or lightly ground areas. Where plain, uniform surfaces are desired, wide sheets of smooth material should be used for forms. We have found the use of 5/8-in. plywood most suitable. When nailed to studs on centers not greater than 12 to 16 in., it is economical and produces true surfaces. However, care should be taken to keep the grain of the outer plies running across the line of the studs. It is much stronger in this position, thereby reducing deflection.

Proper equipment, forms and concrete placement result in sharp detail.

The use of thin form liners placed over a backing of sheathing does not find favor with our firm. We have not found it as economical, and another objection is that thin liners tend to conform to the shape of the supporting sheathing when the latter warps or cups. Sheathing boards often do this due to varying moisture content on the exposed side and the side covered by the liner. Thus, a slight wave effect may be left in the concrete surface which even rubbing cannot remove. If thin liners are used, they should be placed on a solid backing with no spaces left between boards. It is advisable occasionally to wet the sheathing on the back side to prevent warping. If this care is taken, major difficulties in the use of thin plywood are eliminated.

Only well-seasoned or kiln-dried lumber should be used. Green lumber or materials of poor quality will shrink and warp after placement. This requires constant checking and altering if proper alignment is maintained, and generally it cannot then be maintained. Much labor will be required after form removal in bringing concrete to final shape. The use of good lumber is cheaper.

Construction joints should be as few as consistent with needs and selected so that they come at natural architectural lines, window heads, sills or ornamental bands. On the West Palm Beach job, we emphasized the joint by nailing a 3/4-in. V-strip onto the outer form, which impressed a permanent V-joint in the wall and became part of the architectural scheme. At all joints it is advisable to support each lift of forms at their lower edge tightly against the concrete already in place by means of the form ties. Joints can be held flush and leakage of mortar eliminated.

Selection of a proper concrete mixture is an important part of producing good concrete surfaces. We do not like the idea of setting up a specification on the basis of strength alone. So-called 2,000-pound concrete is not suitable. Even 3,000-pound concrete is hardly sufficient. Many things besides strength are important in architectural concrete—plasticity, watertightness, durability and ability to produce an attractive surface texture. These require a certain minimum amount of cement, more than necessary to produce the above noted strengths, but without which placing concrete will be made more difficult and expensive, with possible occurrence of honeycombing, sand streaking and other bad features. To eliminate this danger, we recommend specifying a minimum cement factor and have found 6 sacks per cu. yd. of concrete desirable. This amount of cement produces a fine texture, places well and has all other required qualities. For good hand-placing, the slump

should be about 5 in. With a 6-sack mix, we use about 6½ gal. water per sack. Wherever possible, the use of larger size gravel or stone will be found beneficial. Many times a mixture has a harshness with ¾-in. aggregate that can be eliminated by using 1½-in. material. There are few instances where the larger size cannot be used.

Although we have tried vibrators on architectural work, we have gone back to hand-spading in the belief that it produces better surfaces, free from air bubbles and blemishes. In fact, hand-spading along the outer surface is almost necessary as a supplement to vibration, and since the stiffer mixes most suitable for vibration are very difficult to hand-spade, we prefer a more workable mix which we can hand-spade entirely. Naturally, vibrators are useful in many places, but we don't care for them on architectural concrete. If vibrators are used, they require especially tight and well-braced forms to withstand increased pressures.

While in some parts of the country it is customary to leave the natural surface of concrete formed against plywood exposed, there is a growing tendency in the southeast to specify wet-rubbing with carborundum stone which produces a texture resembling stucco. This type of treatment was given to the West Palm Beach Postoffice which was later given a finish of cement paint.

The World's Largest Barn

By G. P. Lagergren, Architect

AT the Minnesota State Fair, where size and quality count in everything from pullet eggs and pumpkins to Percherons, fair-goers in 1937 got a new conception of size when they visited the new, gleaming white Horse Barn.

The undisputable claim that it is the largest barn in the world can only be realized by its dimensions—350x330 ft. in plan, 115,500 sq. ft. or 2½ acres of floor space, and box and tie stalls for 875 head of prize horse-flesh. But aside from huge size, this reinforced concrete barn possibly merits the further distinction of reflecting a new trend in expositional construction.

The type of architecture selected for the Horse Barn was also used for the new Poultry Barn, a 350x150-ft. structure built in 1937, and will be used for the concessions and service building, a 350x170-ft. structure now under construction. Plans have also been made in architectural concrete for a new 4-H club building which the Fair Board hopes to get under construction this fall. Twenty-two old

By far the largest barn in the world is this gleaming white showplace for horses at the Minnesota State Fair. Built at the surprisingly low cost of 6¾ cents per cu. ft., it was designed by G. P. Lagergren, architect, and erected by WPA workers.

Ground was [illegible] diately after conclusion of the 1936 Fair and foundations were placed before cold weather set in. During that winter laborers, working indoors, precast all the concrete spandrels used in the walls. This unique phase of the construction made it possible to complete the tremendous project before the opening of the 1937 Fair. Most of the spandrels are 15 ft. long and 7 ft. high. All are 6 in. thick, cast against plywood on tables, and after seven days were set up on edge and cured by filling the casting rooms with live steam. On the upper edge of each spandrel two reinforcing bars were looped to form lifting hooks. Steel rods running through these loops formed the reinforcing for window sills cast in place after the spandrel panels were raised into position.

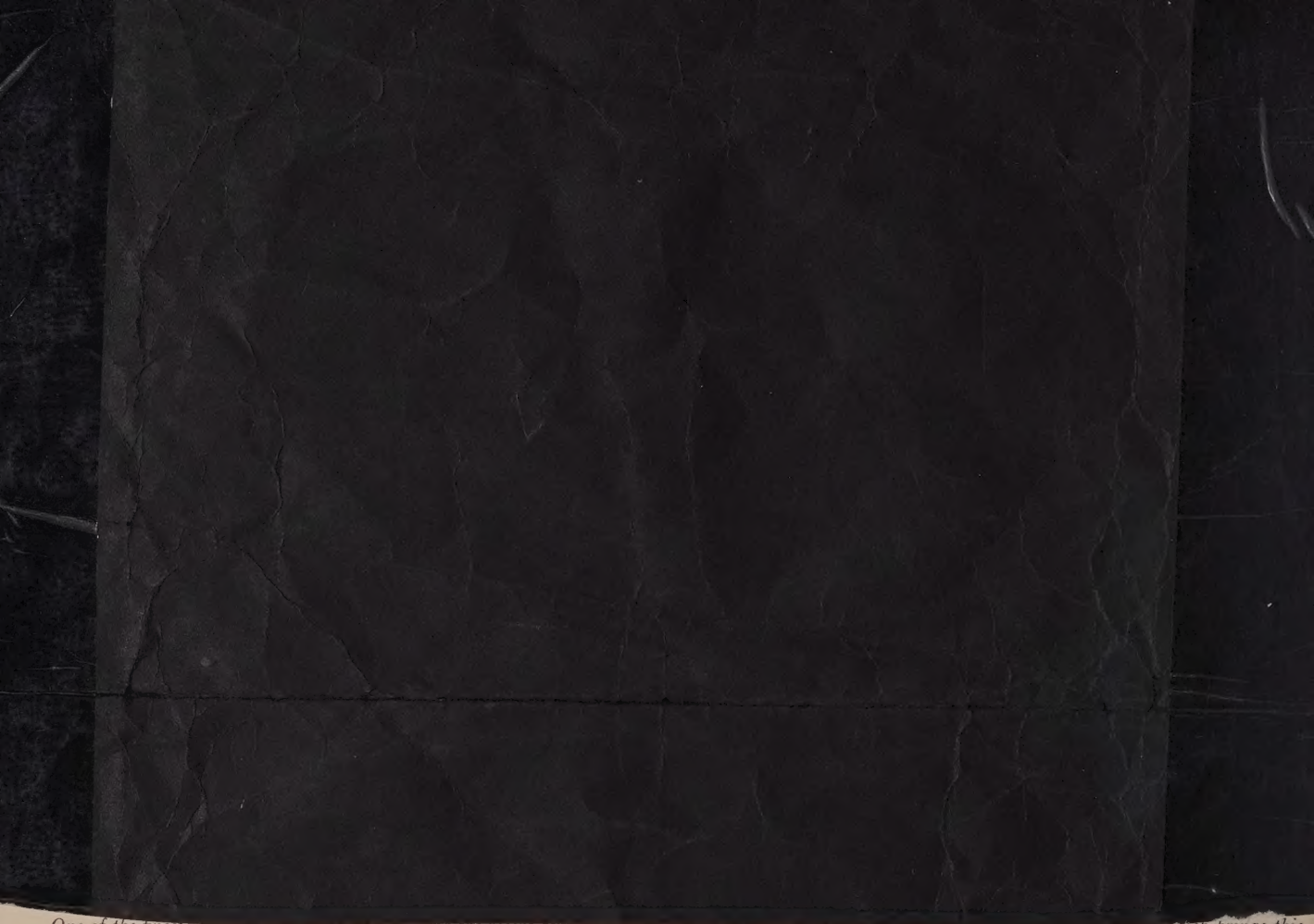
The precast spandrels were set up and columns cast between them.

When spring came the spandrels were hoisted into place and held by braces while forms were erected for pilasters, sills and lintels. The joints between the spandrels and pilasters were filled with premolded felt strips to permit free movement. A vertical feeling was given to the design by the bold fluting on the pilasters.

Due to the nature and use of the building the outer walls were built with large openings with steel sash. The 6-foot overhanging eaves prevent rain from entering even when driven by severe wind. This system eliminates the need for a large number of employes whose only value during Fair Week is to close windows in case of rain.

Decorative detail was kept to a minimum of simple ornamental bands and plaster molded plaques of horse groups and a seal of the State of Minnesota. The smooth-formed walls were then finished with an application of white cement paint. The completed building cost but $6\frac{3}{4}$ cents a cubic foot, not including barn equipment, which is considered very low for a firesafe structure.

Work was done entirely by WPA, of which Victor Christgau is the state administrator. Robert Johnson was construction superintendent.



One of the finest-looking structures erected during the recent building program at Ft. Knox, Ky., is the $[illegible] water treatment plant which brings this important army post an adequate water supply for the first time in its history. Lieut. C. M. Sciple was Construction Quartermaster in charge of the work. Charles H. Thompkins Co., Washington, D. C., was general contractor, and cast stone was made by Grisanti Ornamental Plaster Co., Louisville.

Water Treatment Plant—Fort Knox

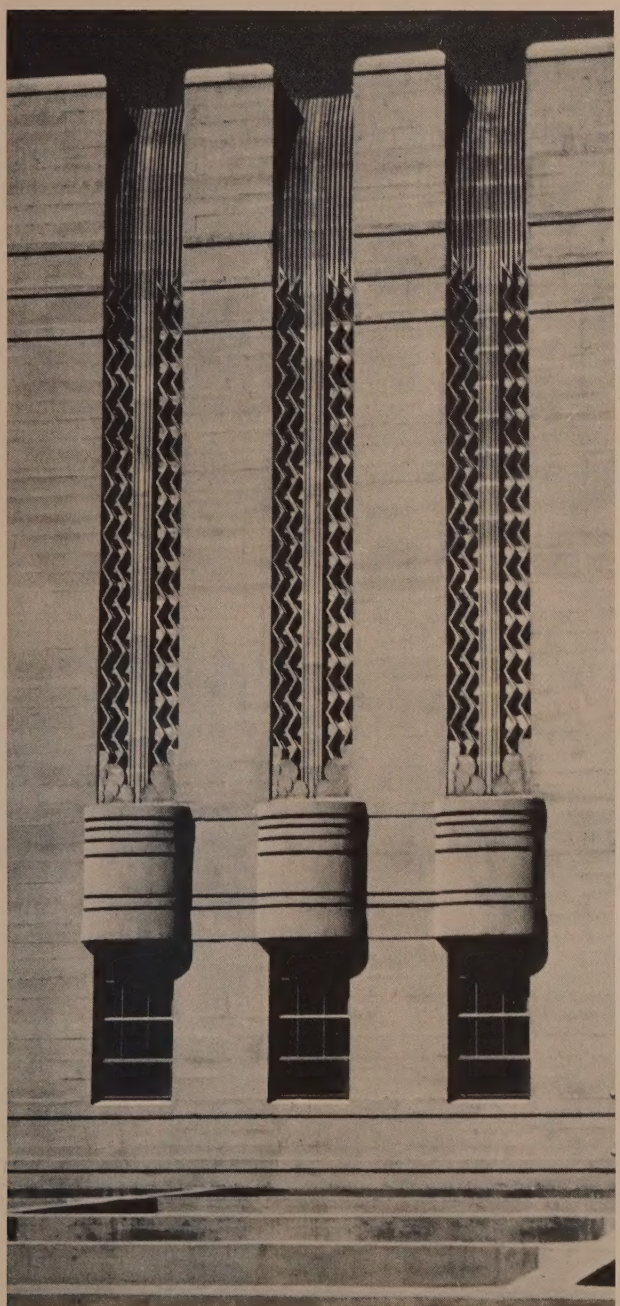
MOST popular known fact about Fort Knox, Kentucky, is that it is the depository for 12 billion dollars worth of gold bullion—a staggering symbol of wealth that only a few adepts at figures left of the decimal point can imagine, and a cache of yellow metal that still fewer people will probably ever see. Folks itching to get close to this fabulous treasure, for any reason, would be discouraged first by the only completely mechanized cavalry unit in the U. S. Army, and then driven to distraction trying to exhume the gold from the labyrinthine corridors in caverns "measureless to man" in which Uncle Sam has cunningly buried this enormous capital foundation material.

While gold storage is an important function of Fort Knox, it is not flaunted, and the visible evidence of these goings on are practically nil. What the visitor sees at Fort Knox is baser material thrown up during the past few years in the form of 4 million paper dollars worth of new construction, erected to bring the plant up to status of a modern army encampment. And, strange as it may seem, the building that is made of the most common and basest of materials is reputedly one of the best-looking structures in the entire layout. This is the new Water Treatment Plant, a reinforced concrete building which stands with great architectural dignity near the center of the Army Post.

Since Fort Knox was built in 1917 it has served as a training base for Reserve Corps, R.O.T.C., National Guard and regular army troops. From the very beginning of the camp the water supply was a constant source of trouble

because the systems in use were entirely inadequate. How poor these facilities were can be explained by the fact that during the construction of this new building it was necessary to suspend operations for 60 days during the summer because all available water was needed to supply the encamped troops in training. An expenditure of $250,000 for a modern water plant has solved this problem for many years.

Architecturally, the new building is as refreshing and brilliant a design as has ever come out of the Quartermaster General's office in Washington, D. C., where the plans were made and the contract let. It is a composition of unbalanced masses dominated by a square tower which gives height and importance to the structure, at the same time serving a very important functional purpose in the plant operation. Generally, its concrete surfaces are simply treated with ornamental detail sparingly and effectively used as accents to each of the well-considered facades. A series of slender grilles, placed vertically in the sides of the tower, taper off into deep reeded reveals at the parapet walls, giving a symbolic effect of tall fountains. These grilles and all other trim are cast stone set after the concrete in the walls had hardened.



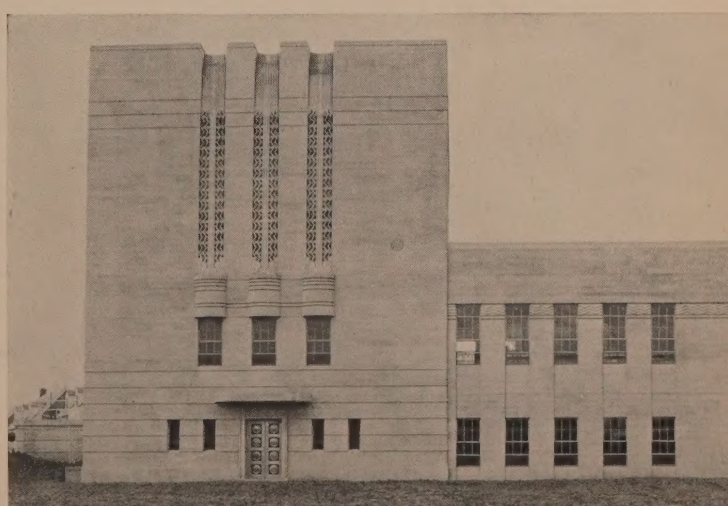
Grilles set in the walls of the tower give the symbolic impression of fountains. They are of cast stone.

The concrete walls of the building were cast against 10-in.-wide No. 2 common square-edged boards sized to uniform width and thickness. Rough edges and fins at joint-lines were removed, but no rubbing of exterior walls was permitted under the specifications. Thus, a vigorous characteristic concrete texture was obtained. Sand and gravel aggregates were brought from Ohio River plants and proportioned with cement by volume, a long-established and rigid policy of War Department concrete work.

Exterior walls were thoroughly cleaned by scrubbing with wire brushes using soap and water and then painted with two coats of portland cement paint. The interior walls were given one coat of paint. Care was taken to keep the wall properly moist while applying the paint, and it was well cured on the walls afterward.

Although the total cost of the plant including equipment was about $250,000, the concrete building cost was only $140,000. Construction was under the direction of Lieut. C. M. Sciple, Construction Quartermaster, assisted by Thomas E. Leahy, supervising engineer, and C. W. Sieman, superintendent of construction, both civilian engineers. Charles H. Thompkins Co., Washington, D. C., was awarded the entire contract. The cast stone work was prepared by Grisanti Ornamental Plaster Co., Inc., of Louisville, Ky., which submitted molds to the Quartermaster General's office for approval.

Front view of water treatment plant.



Architectural Concrete

PORTLAND CEMENT ASSOCIATION
Dept. AC, 33 West Grand Ave., Chicago, Ill.

Please send free copy of *Architectural Concrete for Small Buildings*, a portfolio of small structures with form details and layouts.

Name.....

Pos. or Company.....

Address.....

City.....*State*.....

ADMINISTRATION BUILDING of Spreckels Sugar Company, Plant No. 3, near Woodland, California. The plant layout includes a processing building, laboratory, warehouses and five bulk storage bins—all in architectural concrete. Architect, Harry A. Thomsen, Jr., successor to George W. Kelham; Dinwiddie Construction Co., contractor—both of San Francisco.